DOMESTIC ENGINEERING

A Weekly Record of Progress in Plumbing, Heating, Ventilation and all Matters Pertaining to Domestic Sanitation

ESTABLISHED 1889

Whole No. 1081 | CHICAGO, AUGUST 30, 1913 | Vol. 64, No. 9

PUBLISHED ON SATURDAY OF EACH WEEK BY THE

DOMESTIC ENGINEERING COMPANY

445-447 Plymouth Court, Chicago.

Long Distance Telephone: Harrison 951.

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TERMS OF SUBSCRIPTION.

United States, Cuba and Mexico, $2.00 per year.
Canada, $3.00 per year. Foreign, $4.00 per year.
Current copies, 10c each. Back numbers, 25c each.

Entered as Second-Class Matter at the Postoffice at Chicago, Ill.

The Editor is pleased to consider articles and photographs for publication, but can only use material that is of interest to "Domestic Engineering" readers. Unsolicited manuscripts will not be returned unless sufficient postage is sent. Technical questions will only be answered in the "Questions and Answers" column, in the order in which they are received.

UTILIZING THE FALL FAIR.

AN institution that has done much in educating the public to an appreciation of what sanitary science has to offer, is the annual county fair. This may seem, at first thought, to be a broad statement—but evidence is abundant in its support.

The annual exhibition of the agricultural and live stock industries of a county or a district has gradually evolved itself into an exposition of the manufactured products that are of interest to the home-owners in that district.

The master plumber and fitter has in many cases kept pace with the opportunities offered—but too many times his opportunity to exhibit his lines and convince the public of their advantages have been lost.

Don't think for a minute that the farmer is the only one who attends the annual fair. His city cousin is just as much interested—quite often more so. And the result is that the majority of the citizens are fair visitors every year.

It is a revelation to many of these people to see the completeness of modern plumbing and heating equipment. Particularly are they interested in private water supply systems, acetylene and electric lighting plants, gasoline storage outfits and other equipment that is an every-day necessity on the farm and in the suburban home.

The wide-awake master plumbers and fitters have seen the sign of the times—they realize that the profitable business is far from being confined to the city limits, and have gone after the country business to get it and hold it.

The county fair has become to those who have made the most of their opportunities, a means of "spreading the gospel of sanitation" to all comers. An exhibit of plumbing and heating equipment, with all the frills and fancies of the modern display, is part of the program. Judicious distribution of literature before and during the fair—and a follow-up of prospects obtained at that time, have proven the business-getting possibilities of the plan.

A number of Illinois plumbers have followed this practice for a number of years. We would be glad to receive letters and photographs from others who have successfully worked on this plan, or expect to do so this year.

Some of the manufacturers and jobbers have in the past taken advantage of the opportunity for exhibiting at the larger fairs, especially at the various state fairs, and have not only established themselves in the territories affected, but have made their position stronger with the dealers whose business they want and must have.

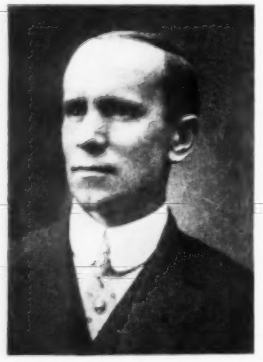
The whole problem is one of education—yet one in which direct business can be traced if the proper intelligence is expended in the execution of the plan.

You may find this the solution of your business-getting problem. If you have found it so, tell us about it.

Loss of Pressure Due to Elbows in Pipe

Problems in the Transmission of Air Through Pipes and Ducts. Read Before Summer Meeting of A. S. of H. & V. E., at Buffalo

CONSIDERABLE discussion has been presented in the engineering press and before various engineering societies regarding the loss in pressure in heating and ventilating systems due to elbows in the pipe line. It has been shown by different experimenters that the loss through a sharp-turn elbow is the greatest, and that this loss gradually decreases as the radius of curvature of the elbow is increased. It will be the object of the present paper to give the results of a series of experiments carried on at the testing plant of the Buffalo Forge Co. These results will be found to agree more or less closely with results already published by other investigators, but as work has been done along some lines not previously considered, some of the more interesting deductions will be presented herein.



Frank L. Busey.

Two sets of experiments have been carried on; the first to determine the effect obtained by changing the radius of curvature of the elbow; the second to study the effect of reducing the throat of the elbow to the theoretical or blast area.

The general arrangement of the apparatus used in making these experiments is shown in Fig. 1. It comprised a blower equipped with an arrangement for varying the air quantity—an air-tight box into which the air is blown—and an outlet from the box so arranged that the different elbows or fittings may be attached and their effect studied. The discharge outlet was fitted with a short length of pipe three diameters long, and a Pitot tube mounted in the center of the pipe one diameter from the outlet. The elbows were attached to the outlet end of this short pipe and another piece of pipe three diameters in length placed on the outlet end of the elbow. For the series of experiments here discussed, the outlet from the box as well as the elbows used were either 12 in. in diameter or of a 12 x 12-in. square section.

In making these experiments the static pressure in the box was accurately measured, and by means of a sensitive differential gauge attached to a Pitot tube in the short outlet pipe the velocity pressure of the air in the outlet was also noted. As different elbows were attached to the outlet pipe the speed of the fan was increased so as to maintain a constant pressure reading at the Pitot tube. The static pressure in the box increased and the increase noted as a measure of the resistance or pressure loss of the elbow used. The same procedure has been employed in measuring the resistance of various outlets and fittings as well as of straight pipe.

Careful tests were made to determine the coefficient of the short length of pipe attached to the outlet of the box, and 0.825 selected. That is, the actual velocity through the pipe or the effective area of the pipe will be only 82.5 per cent of that indicated. The velocity head producing the discharge will then be the static pressure reading in the box multiplied by the square of 0.825. Any increase in static pressure due to the addition of an elbow to the outlet expressed as a percentage of the velocity head as determined in the foregoing gives a direct measure of the pressure loss due to this especial

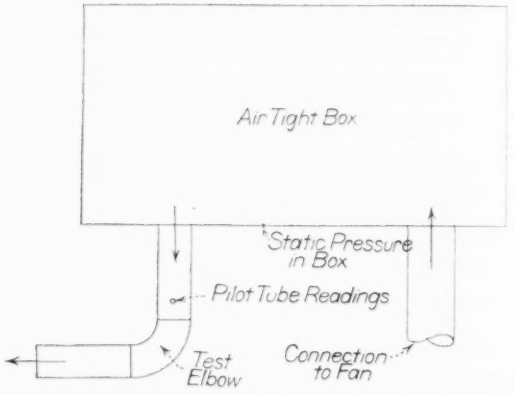


Fig. 1. General Arrangement of Testing Apparatus.

elbow as a percentage of the velocity head. Quite an extensive series of experiments were made with various static pressures and rates of discharge.

Pressure Losses Due to Elbows.

As has been already explained in a paper presented before this society,* the losses in the piping system are made up of two parts, the dynamic losses and the friction losses. The dynamic losses are composed of the loss of entrance and the loss in the elbows and connections. Thus we see that one of the two chief sources of dynamic

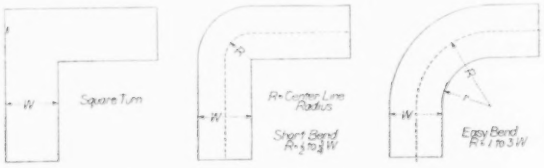


Fig. 2.—Type of Elbows Used in Tests.

loss is in the elbows, and this loss depends not on the size, or on the velocity of the air, but on the radius of curvature of the elbow.

The character of the elbows used in these experiments is shown in Fig. 2. They were either round, 12 in. in diameter, or square, 12 x 12 in. in section, elbows of similar radius of curvature being tested in both the round and square sections. What is here termed a square-turn elbow is shown in Fig. 2 as being actually of a square or two-piece type. While this may not be considered a common type of elbow, it was used to determine what

*The design of Indirect Heating Systems with Respect to Maximum Economy of Maintenance and Operation; presented at January, 1913, meeting of American Society of Heating and Ventilating Engineers by Frank L. Busey and Willis H. Carrier.

the extreme condition might give. The term short bend outer surface rounded off and the inner angle either square or sprung to a very short radius. This would be the case where the center-line radius varied from one-half to three-quarters of the pipe width or diameter. The easy-bend elbows were those having a center-line radius of from one to three times the pipe width or diameter.

Nine elbows, each of the round and square section, were used, as follows:

R = center-line radius In diameters	In inches	r = throat radius Inches
Square turn	.....	.....
0.50	6	0
0.75	9	3
1.00	12	6
1.25	15	9
1.50	18	12
2.00	24	18
2.50	30	24
3.00	36	30

The two accompanying diagrams (Figs. 3 and 4) of pressure loss in elbows, based on actual test results, show respectively the loss by friction through elbows of either round or square section. The loss in per cent of a velocity head is given for elbows of different radii, the center-line radius being expressed as a percentage of the pipe diameter or width.

It may be seen from these diagrams that with R=1½ D, or an inside radius of one diameter, fairly good results may be obtained, without making the elbow unduly long. Practically nothing is gained by making the radius R greater than 2 D.

It is also evident from an inspection of these diagrams that if it can possibly be avoided an elbow with R less than one D should not be used. Even with R=D an elbow in a square duct will cause a loss of 17.5 per cent, and in a round duct 25.5 per cent of the velocity head. In case R= ½ D (throat of elbow square but outer side rounded to a radius of one diameter) the

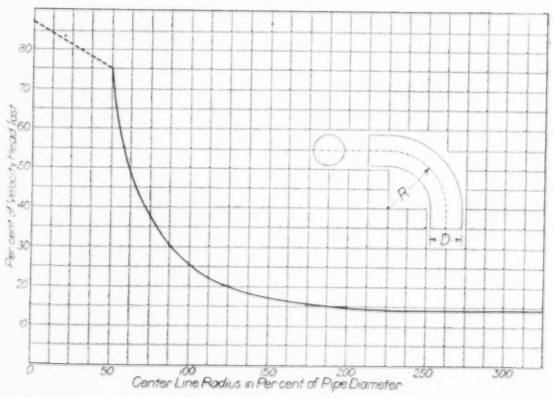


Fig. 3.—Diagram Showing Pressure Loss in Round Elbows.

loss in a square duct will be approximately one, and in a round duct three-quarters of the velocity head. The loss indicated on the diagram for R=O, represents tests on elbows of two-piece construction, or with both inside and outside made square. It is evident that this construction should never be used, since in the case of the square pipe 25 per cent of the loss may be saved by making the outer surface round (R=½ D).

From the curve for the round ducts it will be seen that with an elbow having R=1½ D the loss will be 17 per cent of the velocity head. If we consider one velocity head lost in 50 diameters of straight pipe, this means that this elbow is equivalent in friction effect to 8.5 diameters of pipe. If the elbow were in a square duct the loss would be equal to 4.5 diameters (or widths) of pipe. With a velocity of 2,000 ft. per minute through the duct, corresponding to 0.25-in. pressure, or a velocity head of 0.25 in., the foregoing elbow in the

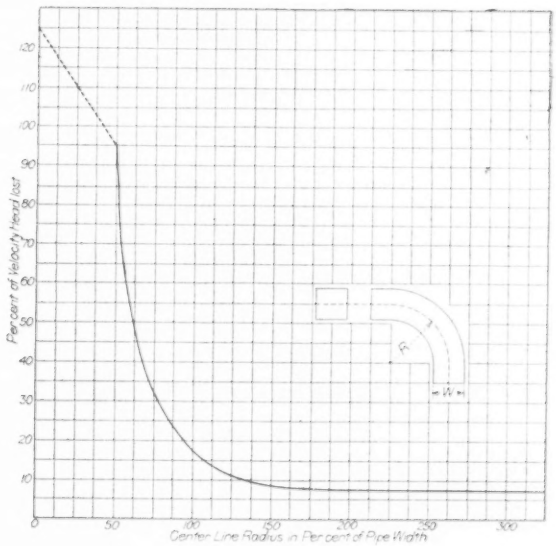


Fig. 4.—Diagram Showing Pressure Loss in Square Elbows.

round pipe would cause a loss of 0.0425 in. and in the square ducts of 0.0225 in.

For ordinary calculations one easy long-radius elbow in a circular pipe may be considered as equal in friction loss to 10 diameters of straight pipe This is the factor used by N. S. Thompson in his book, "Mechanical Equipment of Federal Buildings," as applied to elbows having a center-line radius of 1½ diameters. Prof. L. A. Harding, in an article on "The Design of Air Ducts," in *The Heating and Ventilating Magazine* for April, 1913, gives one elbow having a center-line radius of R=1½D as equal in pressure loss to 10 diameters or widths of pipe. No distinction was made between round or rectangular sections, but according to the tests here considered the loss was not the same for both sections except for a very short-radius elbow having a center-line radius of R=0.6 to 0.65 D. With elbows having R=1¼ D, or greater, these tests show the loss for round section elbows to be approximately twice that for elbows of square section.

Special Venturi Style Elbows.

A series of tests have also been made in an effort to determine the effect of reducing the area of an elbow at the throat to the theoretical or equivalent area. The shape assumed by such an elbow is shown by Fig. 5. This special form of elbow was suggested by Konrad Meier in his book, "Mechanics of Heating and Ventilating," and the idea advanced that by reducing the area to the equivalent orifice, eddy-currents would be prevented along the inner side of the pipe. This would tend to prevent one source of friction, and the long cone effect would aid in changing the accelerated velocity pres-

sure at the turn of the elbow back to static pressure with a minimum loss.

Of the total loss of head in rounding an elbow, about 44 per cent is regained in the straight part of the elbow after making the turn, and the balance, or 56 per cent is entirely lost. The loss in pressure due to any elbow, as shown by the diagrams already given, divided by 0.56 gives the total loss at a point just after rounding the turn, or at the point where the theoretical orifice or blast area is to be calculated. By adding 1.0 to this total loss and taking the square root of the reciprocal, we find the theoretical area as a percentage of the actual area.

As an example of this calculation we will assume an elbow in a 12 × 12-in. duct, the elbow to have a center-line radius

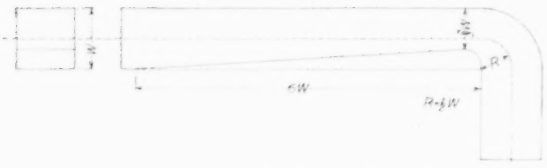


Fig. 5.—Special Venturi Style Elbow Used in Tests.

of ½ W. According to the diagram (Fig. 4) the loss in this elbow will be 0.95 of a velocity head, and the loss at the point of equivalent orifice will be $0.95 \div 0.56 = 1.6$ velocity. Then we will have as the blast area

$$\sqrt{\frac{1}{1.6 + 1.0}} = 0.62 \text{ of the present area.}$$

The foregoing represents an extreme case, and it seems safe to assume that we may say for ordinary square-turn elbows the theoretical area is two-thirds of the actual area. That is, with a 12 × 12-in. elbow the width or area of the pipe may be reduced as shown in the sketch to two-thirds of the normal size without interfering with the air flow or causing an increase in velocity due to the restriction. The greater the center-line radius of the elbow considered, the less will be the loss of pressure through the elbow and the more nearly theoretical area will approach to the actual. Thus with an elbow having a center-line radius of 1½ D the theoretical area would be 94 per cent of the actual.

In order to study the effect of reducing the throat of an elbow as just described, special Venturi shaped elbows were designed on the foregoing basis, and their effect ascertained in the same manner as had been already done in the case of ordinary elbows. The results of these tests are here given, and the accompanying sketches will aid in understanding the arrangements of elbows used.

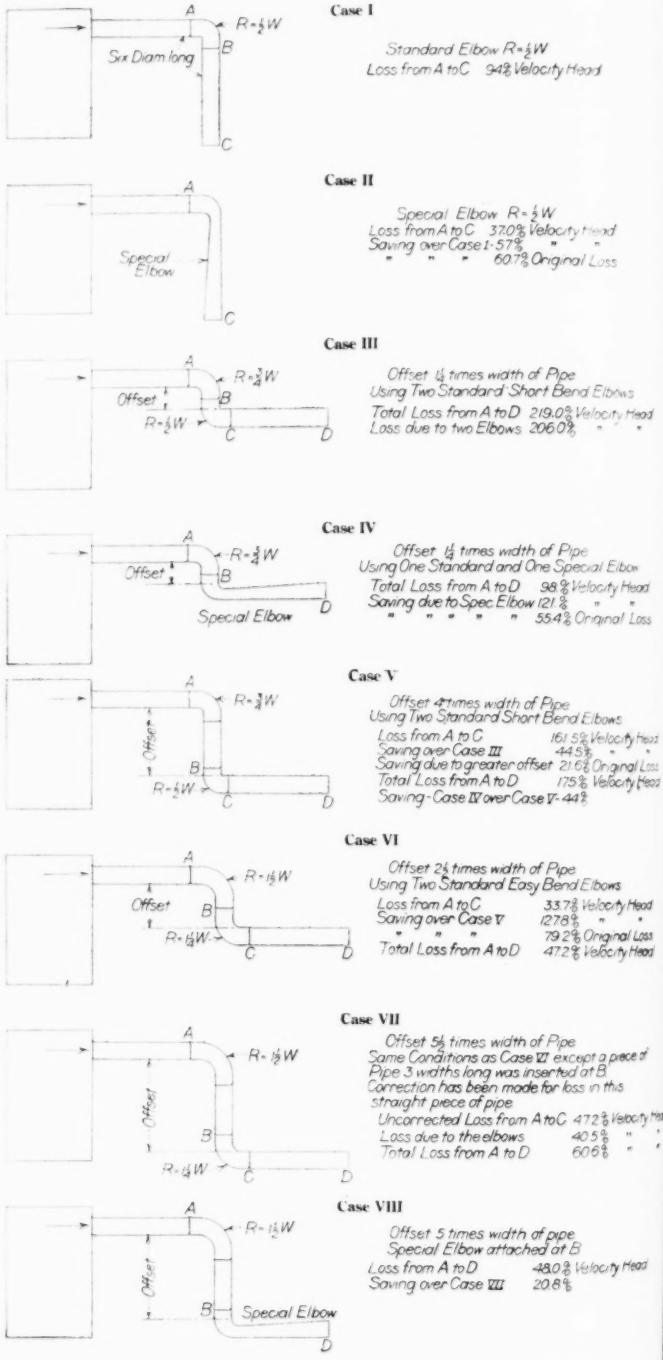
Case I—A standard elbow having R = ½ W was attached to the outlet of the test box and a 6-ft. length of pipe added to give the same length as used in making the special elbow. As indicated on the sketch the loss due to the elbow and 6 ft. of pipe was 94 per cent of the velocity head.

Case II—The standard elbow was replaced by the special Venturi-shaped elbow, and the same conditions as to air pressure maintained. The loss now was 37 per cent of the velocity head, showing a saving of 57 per cent of a velocity head, or 60.7 per cent of the loss indicated for the standard elbow.

Case III—An offset of 1¼ times the width of the pipe was arranged and two short-bend standard elbows used. The total loss from A to D was found to be 219 per cent of the velocity head.

Case IV—The second elbow was replaced at B with the special elbow and the loss found to be 98 per cent of a velocity head. The saving due to the use of the special elbow is seen to be 121 per cent of a velocity head, or 55.4 per cent of the original loss.

Case V—An offset of 4 times the pipe width was arranged with the two short-bend standard elbows, and the loss from A to C found to be 161.5 per cent of a velocity head. The saving over Case III due to the greater offset was 21.6 per cent, but the arrangement shown in Case IV, where one special elbow was used, showed a saving over Case V of 44 per cent.


Case I
A
R=½W
Six Diam long
B
C
Standard Elbow R=½W
Loss from A to C 94% Velocity Head
Case II
Special Elbow
Special Elbow R=½W
Loss from A to C 37.0% Velocity Head
Saving over Case I 57% " "
" " " 60.7% Original Loss
Case III
R=¾W
Offset
R=½W
D
Offset 1¼ times width of Pipe
Using Two Standard Short Bend Elbows
Total Loss from A to D 219.0% Velocity Head
Loss due to two Elbows 206.0% " "
Case IV
Special Elbow
Offset 1¼ times width of Pipe
Using One Standard and One Special Elbow
Total Loss from A to D 98% Velocity Head
Saving due to Spec. Elbow 121.% " "
" " " " " 55.4% Original Loss
Case V
Offset 4 times width of Pipe
Using Two Standard Short Bend Elbows
Loss from A to C 161.5% Velocity Head
Saving over Case III 44.5% " "
Saving due to greater offset 21.6% Original Loss
Total Loss from A to D 175% Velocity Head
Saving - Case IV over Case V - 44%
Case VI
R=1½W
Offset 2¼ times width of Pipe
Using Two Standard Easy Bend Elbows
Loss from A to C 33.7% Velocity Head
Saving over Case V 127.8% " "
" " " 79.2% Original Loss
Total Loss from A to D 47.2% Velocity Head
Case VII
Offset 5½ times width of Pipe
Same Conditions as Case VI except a piece of
Pipe 3 widths long was inserted at B
Correction has been made for loss in this
straight piece of pipe
Uncorrected Loss from A to C 47.2% Velocity Head
Loss due to the elbows 40.5% " "
Total Loss from A to D 60.6% " "
Case VIII
Offset 5 times width of pipe
Special Elbow attached at B
Loss from A to D 48.0% Velocity Head
Saving over Case VII 20.8%

Diagrammatic Explanation of Special Elbow Tests and Results.

Case VI—Two easy long-radius elbows were arranged as shown, to determine the saving due to these elbows as compared with the ones used in Case V. This gave a saving of 79.2 per cent of the loss indicated for Case V.

Case VII—The same elbows were used as in Case VI, and a short length of pipe inserted between the elbows, increasing the offset from 2½ to 5½ times the pipe width. For some unaccountable reasons the loss indicated was greater than for Case VI. It is possible that this arrangement is more productive of eddy currents in the second elbow than the arrangement of Case VI.

Case VIII—The same arrangement as used in Case VII, except the second elbow was replaced with the special elbow. As indicated, a saving of 20.8 per cent over Case VII was obtained.

Application of the Venturi Elbow.

As may be noted from the data given, the principal gain due to the special elbow is when it is used to replace a short-bend standard elbow in which the loss of pressure is excessive. Special elbows were also tried with a center line radius of 1½ W, but, as might be expected, the gain was not sufficient to warrant the extra cost of construction.

This special elbow might be used to advantage in either of two cases. First, where a horizontal run enters a riser at such close quarters that an easy elbow is out of the question and a sharp-bend elbow with center-line radius of ½ W must be used. Second, where a close off-set must be made, as might be required in passing around an obstruction or through a wall. If the off-set is sufficiently great to permit the use of long-radius easy-bend elbows it is questionable whether it would be worth while to use the special elbow. The loss due to the easy standard elbows would be so slight that the saving due to the special elbow would be insignificant.

According to the test results the saving due to the use of the special elbow, as in Case II, resulted in a saving of 0.57 of a velocity head as compared with a short-bend elbow. When used to replace the second elbow in an off-set, as shown in Case IV, the saving was 1.21 of a velocity head. In either event the saving was from 55 to 60 per cent of the original loss.

IN THE WRONG BUSINESS.

The United States Supreme Court is about as dignified and solemn an institution as you can think of offhand, especially at a Monday session when an important decision is handed down. But one Monday the dignity of the session came perilously near being upset. It happened like this: A Washington man whose business takes him to the Supreme Court brought an out-of-town friend along to see the show. The friend happened to be in the plumbing supply business. Pretty soon Mr. Justice Holmes came to the bat with a decision regarding a patent gas burner. He went minutely into the technical details of the controversy. He talked about gas burners from a prehistoric standpoint, from an historic standpoint, and from a viewpoint of the future. For half an hour or more he divested himself of the scientific information which, from a deep study of the subject, he had gradually accumulated. The visitor sat like a man enthralled. It was a hot day and his face was bathed in perspiration, but he listened as attentively as if he were hearing the reading of a rich uncle's will. When Mr. Justice Holmes stopped, the out-of-town man turned to his friend and the newspaper men who were seated nearby, and remarked with deep feeling and in a voice that was naturally rather loud: "By Julius Caesar! When they put that man on the Supreme Court bench, they certainly spoiled a d——d good plumber!"

Publicity for Plumbers

Will They Make a Beaten Path to Your Door?

One of the wide awake master plumbers of New York City is John J. Meyer, of 366 Lenox Avenue. Mr. Meyer has been in the business a good many years—is an inventor of note, and has been manufacturing adjustable roof flanges and other specialties for much of that time.

We were much interested in looking over Mr. Meyer's business card, to find that he was an admirer of Emerson—so much so, in fact, that some of the sentiments attributed to the master essayist appear on the back.

A log house set in a wood—a deer—no sign of other life—yet an attractive bathroom display in the large front window—and the question naturally arises, Where is that water supply?

Emerson is supposed to have said: "If a man can write a better book, preach a better sermon, or make a better

Back of John J. Meyer's Business Card.

mousetrap than his neighbor, though he build his house in the woods, the world will make a beaten path to his door."

The man who made this saying famous is one of the biggest advertisers in the country—though his shops are located in the little city of East Aurora, N. Y. Elbert Hubbard has exploded the Emerson theory in actual practice, while not discounting some of the thoughts it contains.

Mr. Meyer, too, does not too firmly believe that a beaten path will be made by customers to his door. He must make it an object for the customers to find him—he must tell them what he has to offer—he must *advertise*.

Times have changed since Emerson's day. His theory is a beautiful one—and there are thousands of men today sitting back waiting for the story to come true. And as they sit and wait, their more energetic competitors have made the allurements so attractive that the beaten path has grown up in weeds—and time goes on.

Can you do better plumbing? Then let it be known—in no better way will the path of customer be evident before your door.

Is it the Bull in the China Shop?

A news dispatch says that E. S. South, formerly a master plumber of Norfolk, Neb., is to open a "dinner set store" there soon.

Water—Its Properties and Practical Uses

XI.—Some Types of Hot Water Heating for Domestic Use Safety and Vacuum Valve Combined. One Type of Gas Heater

By F. W. TOWER

Double Boilers.

These boilers are used to store water which is supplied from two separate sources; usually one part of the boiler receives water from the street main, direct pressure, while the other is supplied by indirect, or tank pressure, which is usually supplied by some method of pumping, by pump or water lift.

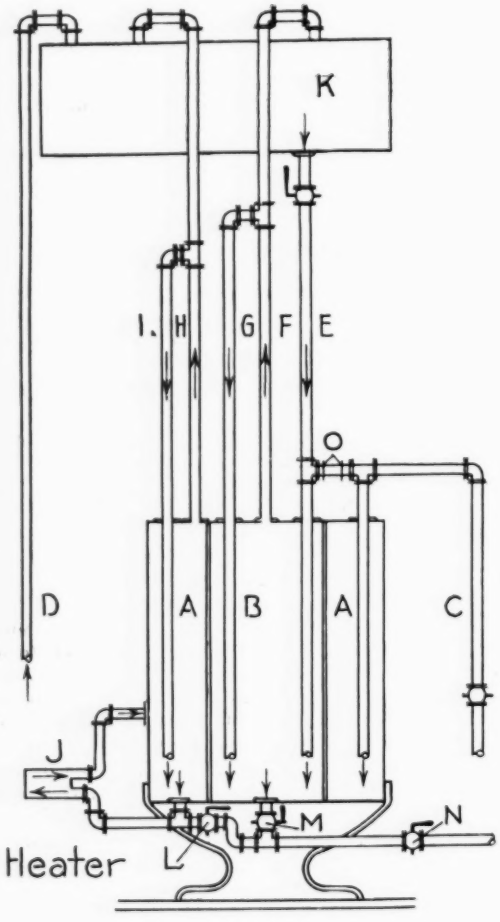


Fig. 1

Double Boiler Illustrated.

A A, outside boiler, supplied from street pressure through pipe C.
B, inner boiler, supplied from tank.
C, cold supply to outer boiler.
D, supply to tank from pump.
E, cold supply to inner boiler.
F, hot water distributing pipe to fixtures, supplied from tank, expansion pipe extending over top of tank, and circulating pipe also attached.
G, circulating return pipe for inner boiler.
H, hot water distributing pipe to the fixtures unsupplied from tank.
I, circulation return to outer boiler.
J, water front connected to outer boiler.
K, tank storage for all upper floors.
L, sediment stops for outer boiler.
M, sediment stop for inner boiler.
N, stop to be used when both boilers are to be drained.
O, check valve to open automatically, whenever the pressure of inside boiler is less than that of the street, to prevent the collapse of the inner and maintain equal pressures, or an equilibrium.

At such times as this check valve opens the flow of water will extend up pipe *E* as high as the street pressure will force it.

The two boilers are combined in one structure or one shell within the other; the inner boiler sustains the lowest pressure, which is supplied from the tank, and is placed inside the high pressure boiler, or outer covering.

The inner boiler is heated by convection, from the water in the outer one, which in turn is heated in the regular manner from one water front.

If the inner boiler should be emptied, while the outer one was full, it would be liable to crush or collapse, in consequence of the external pressure. For this reason, care must be used, and the outer boiler emptied first at all times.

The inner boiler should be filled first.

Each boiler should be separately connected at the top, as is usual for the ordinary boiler.

The inner boiler, to prolong its life, should be of copper, tinned.

A double connection should be made, for the sediment cock, to prevent either boiler being emptied separately.

As the boiler is a storage reservoir for hot water, it is desirable that it be somewhat larger than to just furnish the least demands of a family.

Usually a 40-gallon capacity is used for one complete bath room, a sink, and laundry tubs.

Boilers should be tested, to double their cold pressure, especially when supplied from the street pressure, if excessive.

The expanding force is greatly increased when the water is heated, and with no relief valves attached to the system, explosions are liable, often with serious results.

When a boiler is connected directly to the street pressure, and *no* check valve or pressure reducing valve installed, on the main supply, the expansion of the water in the boiler will force or flow back into the street main, the surplus, *but*, when a check valve, or reducing valve *is* installed, a safety valve *must* be installed.

If the boiler is liable to become siphoned, or have a vacuum formed within it, a vacuum valve must be provided, because the pressure of the atmosphere upon the shell will crush it.

This applies to copper boilers more particularly, as a galvanized iron boiler is strong enough to overcome vacuum pressure.

A boiler that is supplied with an expansion pipe does not require either a safety or vacuum valve, as that relieves all excessive pressure.

Expansion Pipe.

An expansion pipe extends from a kitchen boiler, above the storage tank water level, being left open, and empties into the tank, or, delivers at some other suitable point, acting as a relief pipe in place of the safety valve on a pressure job.

The pressure within the boiler is determined by the height of the surface of the water in the tank above it, and the

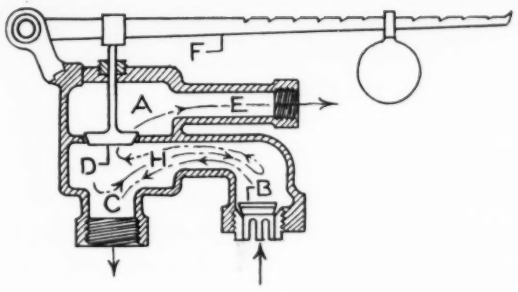


Fig. 2

A Form of Safety and Vacuum Valve Combined.

AD shows the section with safety valve *D*, with outlet *A* through pipe *E* to convey surplus water to some suitable receptacle, such as a sink.

B illustrates the section of vacuum valve resting vertically on a concave seat, the arrows showing the atmospheric pressure on the under side, ready, at the least loss of pressure on the boiler, to push the valve open, whenever the pressure in chamber *H* is less than the outside air.

C shows the connection to the boiler.

Through this opening the water is constantly pressing on valve *D* and *B*, the water pressure tending to open *D* and close *B*.

Whenever the water pressure within the boiler exceeds the pressure limit as adjusted by weight *G* on lever *F*, valve *D* is opened slightly, allowing such excess to escape through *E*.

On the other hand, if the pressure on *B* is lessened to a degree that the atmospheric pressure exceeds the internal water pressure, the valve will open, allowing air to enter, filling the space, and thus equilibrium is obtained on each side of the boiler shell.

boiling point of the water will correspond to that pressure, which will be above 212 degrees in all cases.

When water is heated it expands in bulk, thus a cubic foot of *hot* water weighs less than a cubic foot of cold water.

Because the water, at all times, is warmer in the expansion pipe, than in the cold supply pipe or tank, from the tank to the boiler, the level of the water standing in the expansion pipe will be a little higher than the surface of the water in the tank, but the weight is the same and both bodies balance.

If steam is formed in the boiler, it may force some of the water back up into the tank, but the expansion pipe being connected and open at the top of the boiler, allows the bubbles of steam to pass upwards through it and escape.

Open expansion pipes are not applied to a system of plumbing supplied from the street pressure.

In street supply, expansion is allowed to flow back into the street main.

Whenever a check valve or a pressure reducing valve is attached to the main service pipe, the surplus water, due to expansion, escapes through a safety valve, which should be provided for such a purpose, to avoid accidents.

An expansion pipe makes it impossible to shut off *all* means of relief for steam and vapor.

Water may be shut off, in the street, for a day or more, for repairs, and at such times water cannot be drawn from any of the fixture faucets.

None should be drawn from the sediment cock.

With the boiler full at such times, the level will remain above the side coupling, for several days, *if* none is drawn out at the only point possible, the sediment cock, which is a temptation.

At *no* time should the water get below the side coupling, or empty the water front, when fire is liable to be made in the range.

Always keep the water front, or coil, full.

If the water front is exposed to the heat of a fire when empty, it will warp or crack, and when water is turned on an explosion is certain.

Boilers, when connected to the water front through the side coupling, require considerable time to become heated throughout, and furnish all the hot water that may be desired.

When this delay is objectionable, another method of connecting may be employed.

Under this method, the hot water pipe from the water front is attached directly to the hot water pipe that supplies the fixtures, at the upper part of the boiler.

With this method, the water, as it flows from the water front, may be drawn directly to the fixture, without entering the boiler.

If not drawn as soon as heated, the water flows into the upper part of the boiler and is stored, ready for use, as in the case of the side coupling connection.

The illustration shows a *gas heater* used for this purpose.

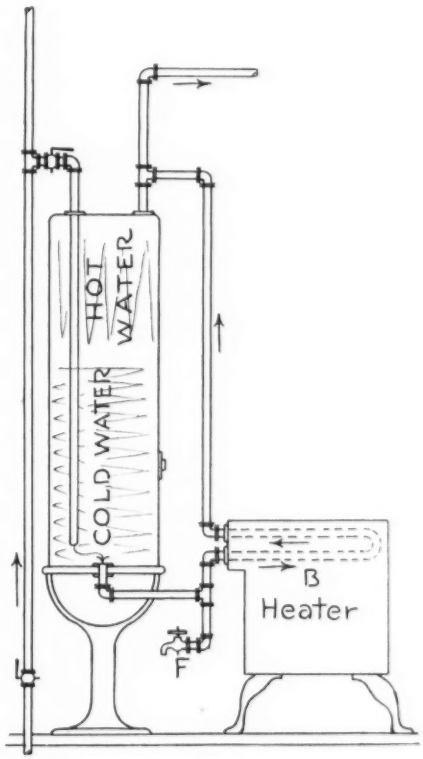


Fig. 3

A represents the usual vertical boiler.
B a gas heater, with water front, or coil.
C cold supply to boiler.
D the hot water pipe from the water front to top of boiler, connecting to the hot water supply or distributing main.
E main distributing main, for fixtures.
F sediment, or drain valve.

The movement of the hot water current, is quite rapid in this method of connecting, due to the long vertical rising pipe to the boiler causing the cold to rapidly flow into the heater to replace difference in weight, as in vertical lines less frictional resistance is encountered, and it is the most natural for heated water to move.

Steam Heated Boiler.

The hot water supply for large buildings, apartments, hotels, etc., is usually heated by steam.

Either a vertical or horizontal boiler may be installed.

The steam is taken in through a coil of brass or copper, to prevent corrosion, and after flowing into the boiler the steam

condenses, after doing its duty, that is, the steam is reduced to water, then it flows to a steam trap or well.

This coil should be graded to allow the pipe to drain to the outlet valve.

The illustration shows a horizontal boiler.

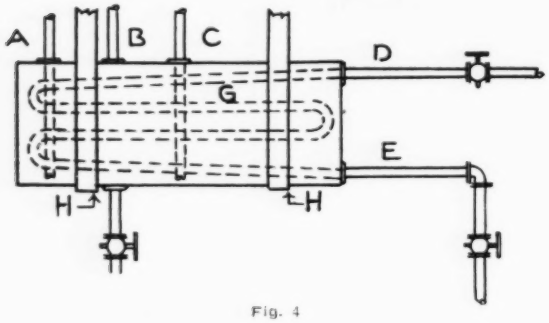


Fig. 4

A, cold water supply, from either tank or the street main.
B, hot water distributing pipe to fixtures.
C, circulation return from fixtures.
D, live steam pipe supply, with controlling valve.
E, condensed steam outlet to trap or well.
F, sediment drainer.
G, boiler may be installed vertically, if the room will allow, and is preferred. The coil would be circular and could be placed near the bottom of boiler.
H-H, iron bands or hangers, to support boiler.

RUTHERFORD, N. J., HAS A WOMAN PLUMBER.

ONE of the few woman "master" plumbers in the United States does business in Rutherford, N. J. Mrs. S. C. Tallman, who has conducted a shop alone since her husband died six years ago, now employs nine men all the time and as many as twenty some of the time. She holds licenses to work from Hackensack to Arlington and from Hackensack to the Passaic river. She says she is the only woman in the country who holds a license permitting her to tap the water mains, says a writer in the Newark Sunday Call.

It is some thirty or more years ago that her husband, a journeyman plumber, decided to open a business for himself in Atlantic Highlands. After five years he came to Rutherford, then Rutherford Park, among the first of New Jersey suburbs to be opened to commuters. It wasn't a large place then, but it was growing, and it looked promising, and he felt sure that success lay ahead of him. For almost twenty years he worked at his trade, now carried on by his wife.

Mrs. Tallman was a masterful woman, as well as a womanly woman. She decided early that her place was helping her husband and so she began to learn the business. Soon she was able to care for the shop while he was out on jobs. And then Mrs. Tallman learned the mechanical end of the business, and when she finally actively engaged in the business was able to do any job as well as the best workman.

She says that she learned to wipe a point on her kitchen floor under the tutelage of her husband, and she declares that she didn't say what plumbers are supposed to say while doing it. Mrs. Tallman claims she is the only woman in the United States today who can successfully wipe a joint and not burn her fingers.

She kept house, cared for the babies, of whom there were eight, tended shop and learned the business. Undoubtedly she was the real commander, for while Mr. Tallman was surely a good workman (they are tearing out jobs now he put in twenty-five years ago) she attended to the business management and looked after the store. Further, when Mr. Tallman died six years ago the business employed three men. Now nine are employed all the time, and sometimes as many as twenty to twenty-five are needed to do the work. The present directoress doesn't believe in being short-handed. She has all the journeymen necessary to do her work quickly and well, and she treats them so well they want to work for her, and remain as long as allowed to.

It will be looked upon by many men as little short of marvelous that this woman should succeed so well in a mechanical pursuit. In this instance any workman Mrs. Tallman employes knows that she can go into the shop or the trench and do the mechanical work as well as he can. It is therefore, with respect that her employes regard her, and they do their work as well as possible, being certain that she is capable of detecting any indication to slight it.

Mrs. Tallman takes high rank as an expert heating and ventilating engineer, and is often called in consultation when a difficult problem is encountered. The woman's intution often enables her to see quickly a way out of a difficulty, which would puzzle a man for a longer time. She has the "only plumber's" shop in Rutherford now. Others have found it impossible to compete with her, not because she resorts to unfair methods to obtain and hold business, but because she does her work so well, and has been established so long that residents of Rutherford have no desire to see her work supplanted.

She has evolved certain methods of her own, a good many of which are the wonder of other plumbers. For example, Mrs. Tallman is said to have an original plan for locating leaks in water mains, but she does it quite as effectively as other plumbers do by the conventional methods, and she repairs them with only a fraction of the trouble usually encountered in such an operation. And this is only one example of the original and numerous unique methods which she has adopted, and uses successfully.

Mrs. Tallman is reluctant to talk about her business and her success, but she did say a few interesting things in answer to questions. "My housekeeping experience has helped me in my business. I know, for example, that washing clothes and dishes is hard enough without breaking one's back over a tub or a sink that is too low. If the woman of the house is going to do this work herself I measure her just as I would for a suit. If she has a servant I make them high anyway, and the shorter maid must stand on a platform."

On the other hand, my business has helped me in my housekeeping. I know that the range will not work with ashes piled under the grate and I know how to obtain greatest heating efficiency from a furnace. Further, I am familiar with plubing and understand how to care for it so as to save plumber's bills. Though I have expended much time and money upon this division of my business, I am always ready to give my customers instruction in watching their plumbing so there can be no question of their understanding how to care for it.

Want to Sell Your Business?

There are hundreds of men who are seeking locations suitable for the establishment of a business of their own. One of these men may be the prospective buyer of your business. The best way to find out is through an advertisement in the Classified Department of "Domestic Engineering."

Hospital Refrigeration and Vacuum Cleaning

Greenpoint Hospital, Near Brooklyn, N. Y. Contains Some of the Most Modern Equipment. Concluding Article

By HAROLD L. ALT

Refrigeration System.

The refrigerating system consists of a complete system of brine piping and coils for all ice boxes. The pipe coils are of extra heavy re-worked wrought iron pipe with hand made welds, no electric welding being allowed. This pipe is all tested to 1,000 lbs. hydraulic pressure and 300 lbs. air pressure under water. The valves are all designed so that they can be packed under pressure, and the fittings used are extra heavy malleable iron fittings. The circulation mains are started at the entrance of the tunnel and run through the building on the basement ceiling.

The necessary branches and risers are taken from them, and from these risers and branches brine connections are made to the risers and coils in all refrigerator boxes and in the cold storage room. Wherever the brine risers pass through the floors they are provided with galvanized iron sleeves of No. 20 gauge set in the concrete floor and fitting around the outside of the covering, a projection above the finish floor of 2 in. being left for the purpose of finishing with a sanitary curbing. The exposed brine pipes, mains, branches and risers throughout are covered with standard cork brine covering 2½ in. thick finished with mineral rubber, wrapped and sewed with 8 oz. canvas which is sized and painted two coats of lead and oil paint and finished with two coats of white enamel.

The valves are 125 lb. working pressure and the flow and return risers are equipped with valves and ¾ in. hose plug drawoff cocks and ¼ in. globe air valves at the top. The brine coils installed in the various refrigerator boxes and cold storage rooms are made up of 1 in. extra heavy wrought iron continuously welded pipe galvanized after welding. Each coil has a valve at the inlet and outlet so that it can be independently cut out and is also equipped with drain and air valve. The coils are located as follows: 9 on the main ground floor for general meats, vegetables, dairy and other sundry purposes, 14 ft. 6 in. x 8 ft. x 8 ft., cooling 928 cu. ft. to a temperature of 38 degrees and consisting of 460 ft. of pipe.

One on the first floor for the dining room 4 ft. x 2 ft. 6 in. x 6 ft., cooling 60 cu. ft. to 38 degrees and consisting of 30 ft. of pipe.

Two coils on the first floor for the pantry, 3 ft. 6 in. x 2 ft. x 6 ft., cooling 84 cu. ft. to 38 degrees and made of 40 ft. of pipe.

One coil in the kitchen for fish use 6 ft. x 3 ft. x 3 ft. 6 in., cooling 63 cu. ft. to 32 degrees and consisting of 30 ft. of pipe.

Five coils on the first to fourth floors inclusive for the diet kitchen, cooling 270 cu. ft. to 38 degrees with 200 ft. of pipe.

Refrigerators.

Refrigerators and ice boxes are installed as follows:

General storage refrigerator, 14 ft. front x 8 ft. deep x 8 ft. high divided by insulated partitions into 4 separate compartments and entered through 5 doors.

Fish refrigerator, 6 ft. x 3 ft. x 3 ft. 6 in., entered through 2 counterbalanced doors on the top.

Dining room service refrigerator, 4 ft. front, 2 ft. 6 in. deep, 6 ft. high, divided into 2 compartments and entered through 4 doors on the front.

Kitchen refrigerators (in each diet kitchen), 2 ft. 6 in. front x 3 ft. 6 in. deep by 6 ft. high, entered through 2 doors on the front.

Pantry refrigerators (2), 3 ft. 6 in. front, 2 ft. deep, 6 ft. high, divided into 2 compartments, entered through 4 doors on the front.

All the above boxes are built as follows:

The walls are constructed of the standard 3 in. thickness wall with a course of waterproof paper between each sheathing, the inner exposed surface being lined with No. 22 gauge galvanized iron and the space formed by the framing filled in with 2 in. government specification sheath cork. The floors of the dining room service refrigerator, the diet kitchen refrigerators, and the pantry refrigerator are insulated in the same manner as the side walls and are finished with 1¼ in. white hexagon tile laid in cement and made water tight. The floor of the general storage refrigerator is made of cement concrete which is water proof with two layers of insulating paper and hot asphalt, then a layer of 2 in. government specification cork breaking all joints, then hot asphalt and paper. Upon this is placed 3 in. of cement finished with 1¼ in. white hexagon tile with a 3 in. sanitary cove tile base around the side walls. All doors are insulated the same as the side walls and are of the "De Canio" type with the jamb and frames milled from one block of thoroughly kiln dry ash, well filled and varnished. The jamb is beveled with a projecting flange on the face. In a dove-tailed groove in the outer frame is inserted an electric tube packing so arranged that by the action of the lever and hinge springs the flange is compressed upon the packing and forms a hermetic seal.

All the refrigerators (excepting the one for fish) are fitted with steel shelving consisting of 1 in. x ⅛ in. steel rods set on 2 in. centers and riveted upon 1 in. x 1 in. x ⅛ in. angled drawers, all of which was galvanized after being assembled. The cork is what is known as government specification cork, which is pure cork compressed into sheets 25 in. long and 12 in. wide of the thicknesses called for and weighing between 9 and 13½ lbs. per cu. ft., these sheets are capable of withstanding immersion in water and boiling at atmospheric pressure for 3 hours without disintegrating or expanding more than 2 per cent lineal dimension in length, breadth or thickness. The paper is 3 ply waterproof special with all points lapped 6 in. and pitched.

Vacuum Cleaning.

The vacuum cleaning system installed consists of 22 outlets located five each on the ground floor, first floor, second floor, third floor and fourth floor, together with two outlets on the fifth. Long sweep fittings are used for all bends and are made of heavy grade cast iron standard quality, and the horizontal pipe lines are hung from ceiling of basement. At the outlets in the halls and at other points where the hose is attached nickel plated sleeves are provided and for each floor a complete set of tools is furnished as follows:

100 ft. of hose in one 50 and two 25 ft. lengths.
1 10-in. carpet renovator.
1 24-in. bare floor sweeper.
1 24-in. carpet surface sweeper.
1 4-in. upholstery cleaner.
1 tuft cleaner.
1 wall duster, swivel back.
1 long handle, and 1 short handle.
1 extension handle.
1 arm handle with cutoff valve.

The piping is arranged so that one outlet on each floor may be operated at the same time and the risers are collected together in the basement and are carried back to the power house.

Questions and Answers

WHICH OF THESE HEATING PLANS IS MOST DESIRABLE?

Editor "Domestic Engineering":—Enclosed please find three rough sketches of a heating job. The building is a two-story, wooden frame building, tar and gravel roofed. We would like to know which plan of piping would work the most efficiently and most evenly, the cost of installation not to be considered.

The ground floor contains stores, the second floor contains an assembly hall. In figuring the radiation for the hall, would you figure the ceiling as exposed wall and allow half of it, or the whole of it? The stores underneath will have little or no heat in them. How would you allow for this in figuring radiation for hall?

In plan No. 1, owing to lack of head room we will have to drip the main run in basement at intervals and then rise again. Where we drip, would it be necessary to put in air valves or would one be all that would be necessary at the end of the line? In any of the three sketches would it be necessary to put in a check valve on the return? As there will be about 1,200 sq. ft. of radiation on the boiler, will it be necessary to put a gate valve on the return of any of the three sketches and why?

In plan No. 3 would you advise running the supply pipe between the ceiling and roof? Can the pipe be run on a level as there will be about seven outlets where the condensation can be relieved. Run of pipe about 150 ft. or 200 ft. long. In your opinion what do you think of the advisability of heating the hall with pipe coils so placed under the windows so that the heat could be distributed as evenly as possible? If so, which would be the best job, 1¼ inch pipe or 1½ inch pipe in the coils? The piping for other side of building to be the same as shown on these sketches.

Lawrence, Mass. M.

Of the several plans submitted by correspondent we would choose either one of those marked No. 2 or No. 3. There is but very little difference in the working value of the two plans.

An overhead system of piping is the very best method to employ and if there is no objection to running the main below the ceiling of the first floor we would advise the use of plan No. 2, and a wet or dry return in the basement will give equally good results provided the end of the dry return, at the point where the drop is made into the return opening of the boiler, can be kept at least fifteen inches above the water line of the boiler. If this is not possible we advise a wet return.

If two mains are run, one on either side of the building, there would be an advantage in using a wet return

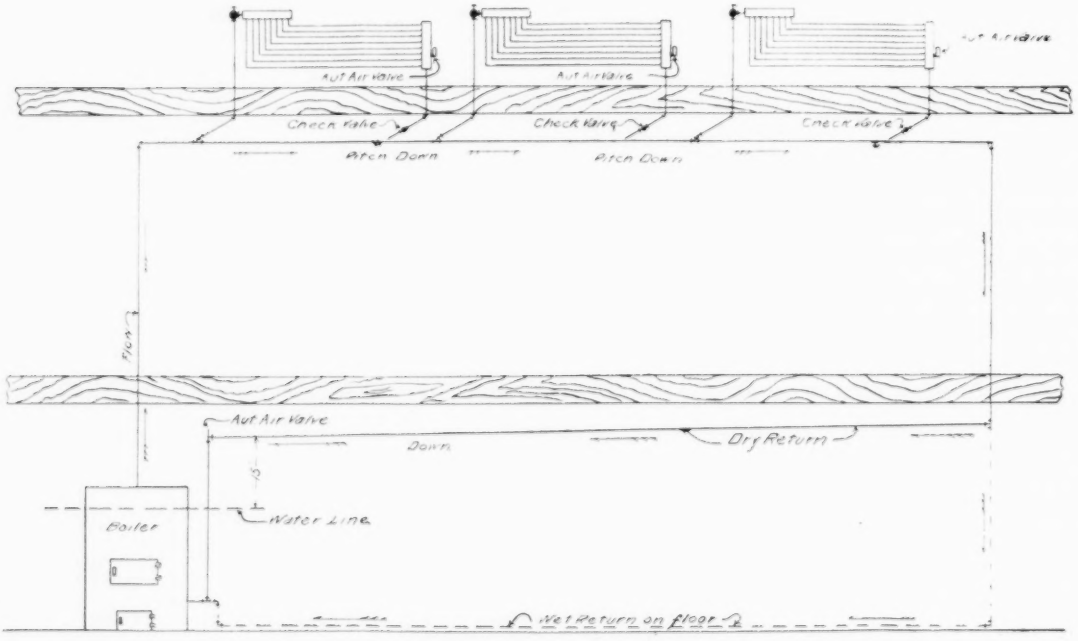


Fig. 1. Illustrating Plan No. 2, as recommended

as but one return pipe would be necessary the length of the building, and both returns could be connected into it at the extreme end of the building.

The automatic air valve is properly placed on the dry return. If a wet return system is installed the automatic air valve should be placed on the end of main at the point where drop is made to the basement.

In the event of making use of plan No. 1 it will be necessary to place an automatic air valve at the end of each level or leg of the main.

There is no occasion for using valves, check or gate, on the return pipe of any one of the three plans.

We advise against running the main between the ceiling of the first floor and the roof unless there is sufficient attic space to allow a workman to get about freely.

The installation of pipe-coils would be advisable if the cost of the work is to be considered, as less pipe and fittings for branches would be required and the distribution of the radiating surface would be even better than if radiators were used, and in this case we recommend 1½ inch pipe for the coils. We give a sketch showing how the coils might be connected and it will be observed that the condensation enters the heating main at the bottom. The clapper of the swing check valves should be filed away and lightened so that but little weight of water will be required to operate it. The horizontal pipe on which the check valve is placed should be two pipe-sizes smaller than the return from each coil.

With regard to estimating the radiation we would figure the wall and glass surface in the usual way and would count the ceiling as exposed wall surface and not take into account the floor surface. This would about equalize the amount of radiation necessary to take care of the total exposure.

ASKS ABOUT A BY-PASS.

Editor "Domestic Engineering:"—On February 22nd, page 217, Fig. 2, of your much appreciated paper, is a little sketch of waste and vent risers showing a by-pass, which so often comes up in your "Questions and Answers" of late.

Now to my understanding a by-pass is mostly to form an outlet for scales or deposit of any kind that will accumulate in the bottom of a vent stack where a square turn is made. I understand there are other good reasons but this one I believe is the most important one.

In Fig. 2 above mentioned, on the first floor, is a by-pass on the bottom of the toilet vent, which appears to me altogether wrong from any standpoint one may observe it. The last ninety degree ell forms a gate like, in time back water deposit may choke it, saying nothing of scales that will, from time to time, come down.

Give this opinion in some future number of "Domestic Engineering," about this particular case of by-pass.

A Los Angeles Reader.

In answer to correspondent's question, we would say, first that apparently he has an erroneous idea of what a by-pass is, for a by-pass is (as the name implies) a pipe which passes around something which may be broken, stopped up and which would otherwise necessarily tie up the service; for instance, a meter placed on a water line should have a connection, or by-pass, from the supply to discharge of the meter; so in case the meter needs repairs, the water can be by-passed around it; the same applies to a pump or any other like piece of apparatus.

Now as to the point in question; the New York regulations say that "all vent lines must be connected at the bottom with a soil or waste pipe or the drain in such a manner as to prevent the accumulation of rust scale." This rule puts it up to the plumber very plainly as to just what he has to do, and we all know that the best way to accomplish this desired end is through a 45 degree ell and Y into the soil or waste stack.

So, according to the above rule, the question by correspondent is well brought up, and, having taken up the matter with the engineer who designed the work the information is furnished that the connection of the vent in this manner is an error of the draughtsmen who should have turned the 45 degree ell around the other way and placed the Y into the stack exactly as our correspondent suggests.

QUESTIONS USE OF VENT AND WASTE.

Editor "Domestic Engineering:"—I should like to know why it is that in Fig. 3 of the article entitled "The Stock Yards Inn," the wastes of the two bathtubs were not turned together, thus saving vent and waste pipe fittings as well as labor. In Fig. 4 is it really necessary to have a separate trap for each tub, and if so, why? And why is there a trap like the one on the first floor at the further end of the drinking water system?

Los Angeles, Cal. A Striving Junior.

In reply to the Los Angeles correspondent who asks concerning the bathtub arrangement shown in the "Stock Yards Inn" article would state that the Chicago plumbing code requires that each bathtub have a separate pot trap and vent for same so that in turning the tubs around as the correspondent suggests, the saving in pipe and fittings would be very small. This also answers the query regarding Fig. 4.

In regard to the loop which the correspondent assumes is for the purpose of a trap it is stated that this loop is for the connection of a future fountain and is installed in order to bring the circulation close to the fountain outlet.

INQUIRES ABOUT HEATING TENTS BY STEAM.

Editor "Domestic Engineering": I have eleven tents to heat by steam and am at a loss how to figure the radiation. The owner requires a guarantee of 70 degrees in zero weather. These tents are 12x14x6 ft. 6 in. high and ¼ pitch roof. I figure walls and ceiling as glass, but perhaps that is not enough. If you will give me your help in suggestion, I shall be grateful.

N. J. Strumquist, jr.

Albuquerque, N. Mex.

We have no available data showing the loss of heat through canvas. We should judge that the loss will be conditioned upon the weight or thickness of the texture of which the tents are made. A good tent seems to be able to easily retain the heat within it, and to keep out the cold and wind.

We believe that in estimating the walls and roof as glass surface correspondent has figured sufficient radiation. We reach this deduction by comparison with conditions as found in unfinished buildings with windows covered with muslin.

In a number of such buildings we have noted no difficulty in maintaining a reasonable temperature within the building with radiation estimated in the ordinary manner.

A RANGE BOILER GIVES TROUBLE.

Editor "Domestic Engineering":—I am sending you a rough sketch of a range boiler problem that is giving us

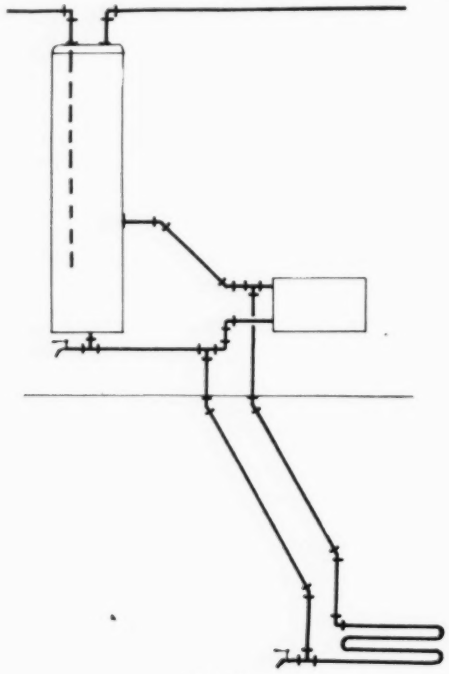


Fig. 1.

much trouble. Until recently only the range was connected to the boiler, and there was nothing wrong, but

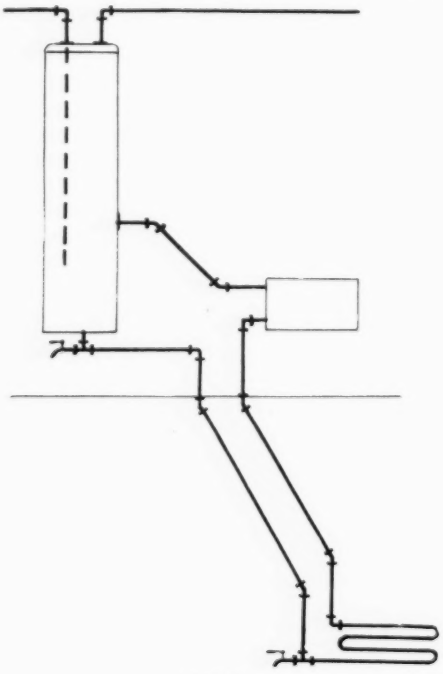


Fig. 2.

as soon as the heater coil was connected, the boiler began to pound, and continues to do so.

How can we change the connections to overcome this trouble?

Detroit, Mich. "Plumber."

In Fig. 1 we show "plumber's" job as it now stands.

It is not difficult to locate the cause of the pounding. It will be found that it is caused by the manner in which the flow pipe from the coil is connected into the flow pipe from the range.

The velocity of the hot water rising from the coil is so great that it chokes the passage of hot water from the range, the result being that in attempting to force its way, the pounding alluded to is created.

The mistake of making such a connection is a very natural one, and often made, and when conditions are right the pounding will very often be the result.

Probably the most satisfactory method of overcom-

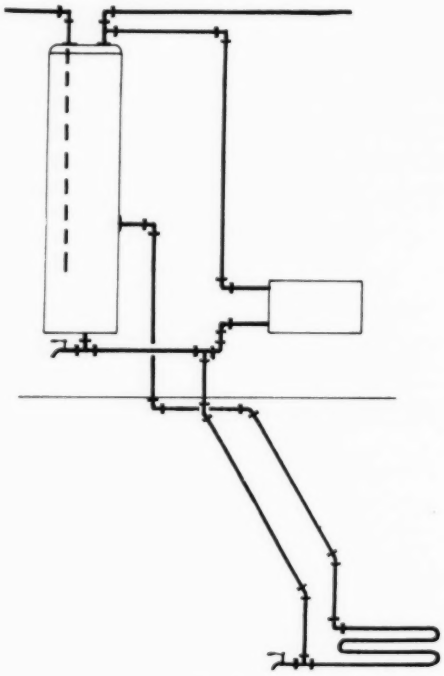


Fig. 3.

ing this trouble is the one shown in Fig. 2, which will give first class results, and call for comparatively little work in making the change.

Another method that might be used, is shown in Fig. 3, in which the flow pipe from the coil is connected into the side of the boiler, and the range flow pipe at the top of the boiler.

If preferable for any reason, the flow pipe from the coil could be connected into the top, and the range flow pipe into the side.

MAKING AND CLEANING WIPING SOLDER.

Editor "Domestic Engineering":—Please explain in your next issue how wiping solder is made, and how to purify wiping solder that has become too poor to use.

Des Moines, Ia. "Apprentice."

The general rule for making wiping solder calls for 3 parts of lead to 2 parts of tin. However, just these proportions will not suit all workmen. Some will want it

a little finer and some a little coarser. Therefore the plumber will generally temper it to suit his own requirements.

To make it fine add tin, and to make it coarser add lead.

A very good test is to pour some of the melted solder on a cold surface, such as iron. If it has a mottled appearance when cool, it is likely to be about right. If it has a granulated appearance it is too coarse, and too fine if it appears very bright.

To purify wiping solder, heat it red hot and add sulphur. This combines with the impurities present in the solder, and brings them to the surface where they can be skimmed off. After this throw in a little rosin. The solder will then have to be tempered, probably by adding more tin, which burns out more easily than the lead.

BARBER SHOP INSTALLATION.

Editor "Domestic Engineering":—We are sending a rough sketch of a pipe job for a barber shop. The customer wants a circulating hot water pipe to these fixtures.

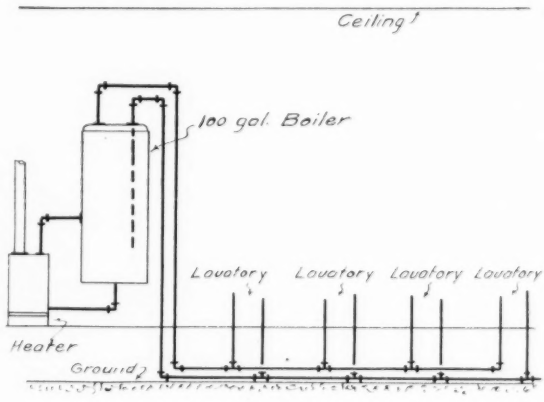


Fig. 1.

We would appreciate it, if you send us a sketch, showing your way, or the only way, if it can be done with success.

Fayetteville, Ark. Duggans & Son.

The job on which correspondent wants assistance, is shown in Fig. 1, all fixtures being on the same floor as the boiler and heater.

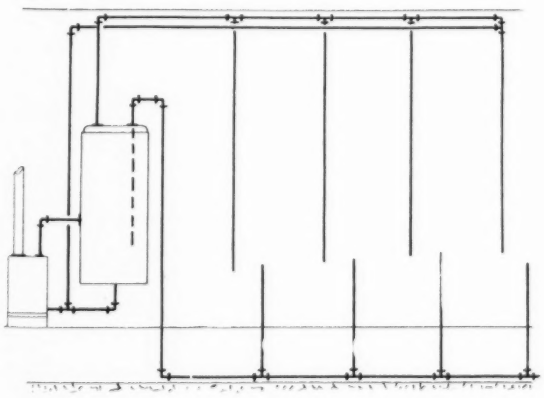


Fig. 2.

This latter fact shows that not much head can be obtained and therefore a method must be followed in running the circulation which will allow the return to run so that in taking the water back to the boiler it will not have to be raised any higher than necessary. For this reason the return could not be run at such a low level as the ground line, where the cold water is at present laid.

We show in Fig. 2 a good method of installing this work, both flow and return being run overhead, with branches dropping down to the fixtures. The only objection to this method is that cold water in these branches may often have to be drawn before the water runs hot, but very likely this would not be very objectionable. Fig. 3 shows another method, with the return run just above the floor. If the return can be run higher, the job would be considerably improved. With the return run as in Fig. 3, it may possibly be necessary to use a check valve on the return. In either of the two methods which we show, the cold water supply can be allowed to remain as at present installed, unless there is some special reason for changing it that we are not acquainted with.

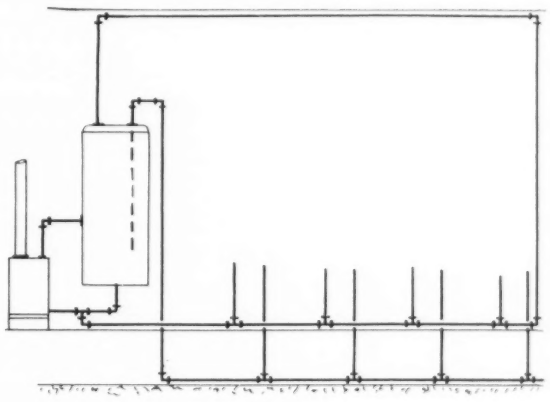


Fig. 3.

A CIRCULATING ICE WATER SYSTEM.

Editor "Domestic Engineering":—We are sending you under separate cover plans for the addition to the Arlington Hotel of this city. The present building is four stories and will be six stories when completed.

There will be hot and cold water to each bath room. The owners wish to install an ice water system to connect with each bath room. The water will have to be forced around from the coil by a pump which will be located in the cellar of the present building.

We were planning to run the pipe to the fourth floor, then have to loop the pipe or trap it, viz.: the pipe will go up bath room A and down again approximately 17 ft., then up bath room B, down bath room C, up bath room D, and down bath room E and so on through, making twenty loops or traps in all, each one to be 17 ft. deep.

In your estimation would the twenty traps counteract the pressure of the pump, which would be about seventy-five pounds? If so, how much pressure would it need to force the water through the twenty traps, or can you suggest a better or more practical way of installation so that the circulating ice water can be drawn immediately. Would you suggest 1-in. or ¾-in. pipe for the main risers?

Trusting you can give information we desire or suggest some better plan we would be very grateful.

Binghamton, N. Y. McManamy & Rodman.

Analyzing the proposition submitted in the above communication it is stated that the pump used to circulate the

ice water supply is situated in the basement of the building, the pressure at the pump being 75 pounds; that the main supply pipe will be taken to the fourth floor and then form a continuous supply line to the various bath room fixtures making 20 loops or passages up and down 17 feet in height in passing through the building.

One pound pressure will lift a column of water approximately 2 ft. in height, not considering the friction in the pipe and fittings. It would be impossible from the data given to estimate the amount of friction in the supply line which forms the 20 loops mentioned not knowing the length of the pipe or the number of fittings to be used on it.

As elevation plans of the building were not submitted we do not know the height from the level of the basement floor to the supply line on the fourth floor but infer that it is about 40 ft., which of course would require 20 pounds' pressure for this portion of the lift, not counting the friction. The lift on the remainder of the supply line may be estimated by multiplying the number of loops, 20, by 17, the height of each loop, which would give a total lift of 340 ft.

We believe that correspondent is providing entirely too much friction and is putting entirely too much load on the pump by the method of piping proposed. We suggest that an overhead system of supply be provided figuring on a pump capacity suitable for lifting the water to the top of the building. There carry the supply lines over and across the various bath rooms and drop a branch pipe downward through each line of bath rooms to supply the cold water to each bath room fixture. The bottom of the drop lines can then be connected into one returning line which will be taken back to the cooling coil in the basement.

The advantages of this method of piping will be found in the fact that the entire duty of the pump will be to raise the water to the top of the building and to force it or deliver it to the extreme ends of the building. This will not require a greater pressure than 75 pounds at the pump unless the length of the pipe and number of fittings reduce the pressure too much. We would suggest nothing less than 1 in. pipe for the main circulating pipe to the bath rooms in each wing. The size of this pipe is conditioned largely by the number of probable users of water at one time; however, we believe that a 1 in. line to each wing and a 1½ in. or 2 in. main riser and main supply will be sufficient for every need.

CLEANING CLOGGED WASTE PIPES.

Editor "Domestic Engineering":—Please give me what information you can as to the most effective method of cleaning waste pipes that are clogged with grease, etc.

Seattle, Wash. "Subscriber."

In many cases, where the clogging of a waste pipe by grease is not too great, the pipe can be cleaned with potash or common washing soda. In the use of this chemical, much more effective work can be accomplished by the use of a quantity of very hot water.

If the stoppage fills the pipe, or nearly so, so that the above method would prove ineffective, the best thing we know of is to use what is called a flexible waste pipe cleaner.

These cleaners are made of coiled wire, having a large spiral gimlet point at one end for boring and breaking up the stoppage, and a handle or crank at the other end for turning the cleaner forward.

These cleaners for ordinary purposes are made ⅜ inch in diameter, but may be obtained 1 inch in diameter for use on large work.

They are made in lengths of 8, 15, 25, 50 and 100 ft., and by their use a stoppage can often be cleared without taking down the piping or digging it up, as the case may be.

CONNECTING RANGE BOILER OVER WINDOW.

Editor "Domestic Engineering":—I have a kitchen range to connect where there is a door and a window between the range and boiler.

I can think of no other way to connect the boiler than by running under the floor with the flow pipe from range.

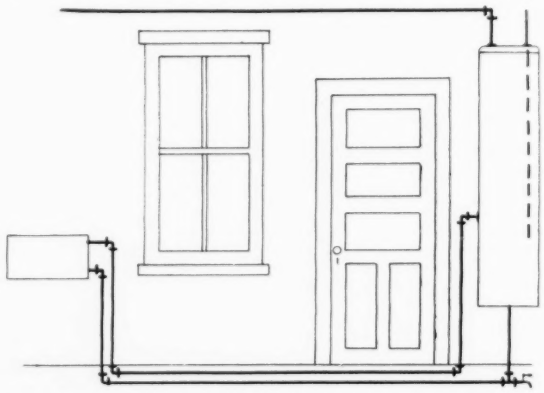


Fig. 1.

I do not think this would work satisfactorily, and wish you would inform me how to make connections that will give good results.

Erie, Pa. "Inquirer."

No doubt the connections that "Inquirer" has thought of using for this job are the same as those shown in our Fig. 1.

Such connections as he intimates, would come very far from producing results that would be satisfactory.

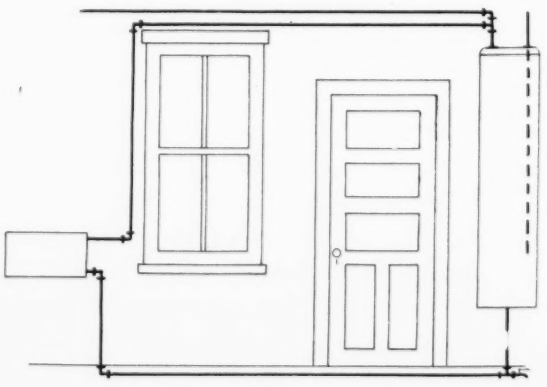


Fig. 2.

It is a very easy matter to make connections however, which will be entirely o. k., and these we present in Fig. 2.

All that is needed is to carry the range flow pipe above the windows and connect it into the flow pipe from the boiler. This is nothing more than a quick-heating connection, such as is used in connecting gas water heaters.

The cold water pipe between range and boiler can remain as in Fig. 1.

Outing of Newark, N. J., Master Plumbers

Twentieth Annual Event Participated in by Representatives of the Trade from Several States—Other Outings in the East and West

THE twentieth annual outing of the Newark Master Plumbers' Association was held on Aug. 21 at Wardell's, Port-au-Peck, on Pleasure Bay, N. J. The start was made from Newark at 9:35 a. m. on a special train of the Central Railroad. The two hundred members and guests who boarded the train were entertained by the twenty musicians who accompanied the party.

At 1 p. m. the bugle was sounded, announcing that the "Famous Wardell" clambake was ready to serve. During the "bake" the colored talent of Wardell's treated the guests to music. After the dinner was over, Mayor Haussling, of Newark, and A. Selden Walker, of Orange, N. J., addressed the members and guests.

The baseball game was started at 3:30 p. m., the line-up being as follows:

Plumbers.	Position.	Salesmen.
Bermann	cf	Homer
Banderman	p	Augster
Hauck	lf	Stephen
Crawley	1b	Thomas
Noble	c	Kraft
Hyatt	2b	DeHart
Banderman	3b	Nicolls
Taffy	rf	Gluckman
Walbrook	ss	Sink

Umpire, E. Pollack; Score-keeper, B. Gasner; Manager, Jack Elsey; Captain, Al. Derol. Score: Plumbers 31, Salesmen 30.

Much excitement prevailed during the game. The brilliant fielding of Homer caused much comment. B. V. Harris, a spectator, was hit over the eye by a foul ball, causing a slight wound. F. J. Sturn, treasurer of the committee of arrangements, was the busiest man in attendance.

Among the notable guests present were National Vice-president S. Louis Barnes, of Philadelphia, Past State President George Turner, Asbury Park, N. J., National Director A. Selden Walker, of East Orange, N. J., National Treasurer Wm. McCoach, of Philadelphia, Pennsylvania State President D. F. Durkin, jr., of Philadelphia, Geo. F. Uber, of Philadelphia, and William Jacobus, of Newark.

The manufacturers, supply and specialty concerns were well represented by the following gentlemen: Jack Elsey and Al. Devoe, the famous lightweight and heavyweight "boiler champions," of the Thatcher Furnace Co.; J. McDermott, of W. S. Coe; E. Carle, Newark, N. J.; W. F. Kenney, of the Wolverine Brass Co.; W. A. Birdsall, of W. A. Birdsall Co.; Howard D. James, of the John Douglas Co.; L. J. McCormick, of J. L. Mott Co.; C. E. Pollard, W. V. Egbert, DeWitt Cook, of the W. V. Egbert & Co.; Tom Hoover, Van Ness Slate Co.; E. Oettinger,

F. J. Strum, Treasurer Arrangement Committee, of the Newark Outing and L. J. McCormick of the J. L. Mott Iron Works.

of the Rickersberg Brass Co.; W. J. Brady; Jos. Byrne; H. J. Homer; R. Glickman, of the Howard Plumbing Supply Co.; K. Ackerman, Ed. Sink, of the Crane Co.; Ray D. Condit, of the Wm. Page Boiler Co.; J. C. Vreeland, of John S. Morton Co.; C. J. Weller, of the Boynton Furnace Co.; B. Gasner, of Eisner Bros. Co.; Ed. Augster, of the Orange Supply Co.; F. Nicolls, of the Alberene Stone Co.; W. Kraft, Ed. Flaherty, of Richardson-Boynton Co.; J. Fliteroft, O. W. Gleason, of the Haines, Jones & Cadbury Co.; "Jock" McKay, of the Peerless Selling

A Group of Members and Visitors at the Newark Outing. Geo. F. Uber, National Treasurer William McCosch, National Vice-president S. Louis Barnes and State President D. F. Durkin, Jr., in Front Row.

At the Newark Outing—First picture left to right: Wm. Kenney, of the Good Mfg. Co.; Chas. Kline, Newark, N. J.; J. McDermott of W. S. Coe; and E. Oettinger of Rickersburg Brass Co. Second picture, Some of the Baseball Enthusiasts. Third picture, A Happy Bunch of Salesmen.

Co.; A. Crookston, W. A. Crookston & Co.; F. D. Blucken, of the American Radiator Co.; J. F. Page, W. S. Appleton, of the Richmond Radiator Co.; E. L. Langford, Central Foundry Co.; N. E. Sipple, of H. Mueller Mfg. Co.; A. Deuchler, Phil. Donnelly, Jas. A. Coe & Co.; W. DeHart, of the Good Mfg. Co.; C. E. Stevens, J. C. Mounot, of the Eller Mfg. Co.; Ted Moran, of the Victor Brass Co.; Ben. Wullack; F. J. Engelburger, of F. J. Engelburger & Co.; W. O. Gerneck, of Crane & Milligan.

John J. Turbett, chairman, Elmer Lutz, secretary, F. J. Sturn, treasurer, Robert Berla, Mathew J. Brady and Louis Maier comprised the committee of arrangements, and much credit is due them for the success of the affair.

MUSKEGON, MICH., PLUMBERS HOLD OUTING.

On August 7, the local association of plumbers held their annual outing at Lake Mona Park. There was quite a large attendance, including almost all the plumbers of this city and their families and quite a number from Grand Rapids and Kalamazoo.

LOUISVILLE MASTER PLUMBERS' OUTING.

The Louisville Master Plumbers' Association held its annual outing Thursday, August 28, at Fern Grove, Ind., the executive committee of the organization having decided upon that plan at a recent meeting where the matter was considered. All of the members, with their families and employes, participated in the excursion. The association will not hold its usual regular meeting on the evening of September 1, that date being Labor Day, and announcements to that effect are being mailed to the members by President George Schardein.

OUTING OF MEMPHIS MASTER PLUMBERS.

The Master Plumbers of Memphis had a most enjoyable outing last Wednesday afternoon at Edgewood Park, on the new Raleigh Springs road above Chelsea Avenue. The affair was a stag entertainment and was marked by barbecue, Brunswick stew and other good things. It is the plan of the local body to make good every summer and winter with a social, either on land or on the river, either a picnic or a roof garden affair or a theatre party. The best fraternalism exists among the Memphis plumbers and while no one has made any too much money this summer, they are all feeling good at the world and hope to do better after the "crops come in." It has been excessivly dry in this section but two rains have broken the drouth the past few days.

DEDICATION OF PUBLIC COMFORT STATION.

Dedication of the first public comfort station built in any Sacramento, Cal., park, as a gift to the city, took place in Fremont Park, Sunday, August 3rd, with Attorney Clinton L. White as doner for Mrs. Caroline Fratt.

OUTING OF DES MOINES MASTER PLUMBERS.

The master plumbers of Des Moines, Ia., held their annual outing at Thirtieth Street and the Urbandal car line, on Saturday, August 9th. Almost all the plumbers and their families participated in the affair, which obtained through the afternoon and evening. One of the big features of the day was the dancing.

ASBURY PARK MASTER PLUMBERS' OUTING.

The tenth annual outing and clam bake of the Asbury Park Master Plumbers' Association will be held on Tuesday, Sept. 2, 1913, at Port-au-Peck, Pleasure Bay, N. J. Special car leaves Cookman Av. and Main St., Asbury Park, at 9 o'clock sharp. A good time is assured to all. Tickets are $5.00 per person.

KNIGHTS OF GALENA ANNUAL OUTING AT DEXTER PARK, JAMAICA, L. I., SEPT. 6.

On September 6, 1913 the Knights of Galena will hold their annual family outing at Dexter Park, Jamaica, L. I. Tickets may be had from Daniel A. Mackin, Secy., 190 Hull St., Brooklyn, New York City.

MANHATTAN MASTER PLUMBERS' ASSOCIATION TO HOLD ANNUAL OUTING.

The annual outing of the Master Plumbers' Association of Manhattan, N. Y. City, will be held on Sept. 10, 1913 at New Dorp, Staten Island, N. Y. City. Tickets may be secured from Secretary Harry Hemlein, 144 W. 99th St.

The annual outing of the Master Plumbers of White Plains, N. Y., will be held on Sept. 13, 1913. A good time is assured to all.

DETROIT IN FAVOR OF A DEPARTMENT OF PUBLIC SAFETY.

If the recommendations of the joint charter commission committee on public welfare are adopted, Detroit will have a department of public safety covering electrical, boiler, building, plumbing, sanitation, public signal installation and inspection.

The proposed bureau of plumbing and sanitation is designed to cover not only all plumbing and drainage, except public sewers, but housing problems. It is provided that no license or permit shall be issued after a third conviction for violation of the Department's rules. A license may be refused after one conviction. Violations of any of the rules of the proposed bureau will be made punishable by a fine of $100 or six months, or both.

CHANGES IN PARCEL POST LAW.

On August 1st a change was made in the laws covering parcel post, whereby it now becomes possible to ship packages of twenty pounds instead of eleven pounds within the first and second zones. The new law also abolishes the second zone, making the rate which has heretofore applied to the first zone apply to the second also. In other words where it was possible originally to ship a package by parcel post a distance of fifty miles (the limit of the first zone) it is now possible to ship the package at the same rate a distance of two hundred miles (the limit of the second zone).

The advantage of this system and the new rate is illustrated by an experience since the new law went into effect, whereby it was possible to ship a package weighing four pounds a distance of one hundred and seventy-five miles from Chicago to a point four miles in the country, on a rural mail route, at a cost of but eight cents, the rate being two cents per pound within the limit of two hundred miles. The express charges on a similar package, had the package been shipped in that way, would have amounted to at least thirty-five cents and the delivery would have been made only at the office of the express company in the city at which the package was delivered and it would have been necessary for the recipient to have gone to town to get it.

Ordinary postage stamps can now be used on parcel post packages. It is not yet possible to ship books by parcel post, that being the only commodity that is not allowed the free use of the new substitute for express service. Shipments of books, it was claimed, would swamp the post office and would interfere seriously with the present traffic, but it is understood that a change will be made at an early date which will include books among the articles transported under Uncle Sam's express service.

Grand Island, Nebr.—William Kelly & Co., of this city, have been awarded the contract for the installation of the plumbing and heating systems in the new school building at Aurora, Nebr.

Rawlins, Wyo.—The Wyoming Plumbing & Supply Co., of this city, have been awarded the contract for putting plumbing in each of the 136 cells in the state penitentiary.

Denison, Ia.—A. C. Christiansen, of this city, has been awarded the contract for installating the pumbing and heating in the new German Opera House.

Oconomowoc, Wis.—C. A. Canterbury & Co., of this city, was awarded the contract for installing a vapor heating system in the George Olson residence.

Oconomowoc, Wis.—Welch Bros., have been awarded the contract for installating a vapor heating system in the residence of Arthur Lopner, in this city.

Mount Vernon, N. Y.—Otto C. Wuestenhoefer of 69 Mount Vernon Avenue, has been awarded the plumbing and heating contract for the new Odd Fellows' Home on Tuckahoe Road, Yonkers, N. Y. Contract amounts to $30,000. This is one of the largest contracts that has ever been given out in Westchester County.

MIDSUMMER MEETING OF MINNESOTA AND DAKOTA PLUMBERS.

On Sept. 4 a joint meeting of the master plumbers of Minnesota and North and South Dakota is to be held at Minneapolis. This is the big day of the Minnesota State Fair and President W. W. Hughes expects a big attendance.

CITY WILL HAVE PLUMBING DONE AND CHARGE TO PROPERTY OWNER.

The Board of Health of Grand Rapids, Mich., after having notified John Van Oest, a property owner, to have modern plumbing installed on his premises at 334 Pleasant Street South West, have taken charge of the work and have awarded the contract for the plumbing to the Nyburg-Witte Co., at a price of $252.50 and will charge the bill for same against the property.

Jasper, Ind.—Wm. Rausch, of this city, has purchased the plumbing business of Frank X. Popp and will conduct the business at the same address.

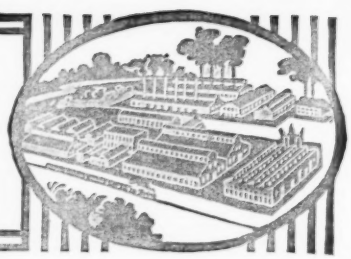
Independence, Ia.—C. I. Courtnage, of this city, is selling out his plumbing establishment. He is moving to Great Falls, Mont., where for six months in the year he will carry on his business and the other six months he will reside on his claim, which is seventy miles from the city.

Lucius H. Mills.

Lucius H. Mills, a prominent plumbing contractor of Bridgeport, Conn., died at his summer home at Walnut Beach, near that city on August 14, after an illness of less than two weeks duration. He was one of Bridgeport's oldest business men, having conducted a plumbing establishment under his own name for more than 40 years. He was 66 years of age. About a year ago Mr Mills was attacked with lead poisoning in his right foot and the infection developed to such an extent that it was feared for a time that it might be necessary to amputate the foot. He recovered, however, but never regained his full health. The immediate cause of death was kidney trouble.

Mr. Mills was born in Bridgeport and when a young man went to New York where he learned the plumbing trade. He then returned to his home city and formed a partnership with Zalmon Goodsell. After a few years Mr. Goodsell retired and Mr. Mills thereafter conducted the business alone. He had served the city as police commissioner, park commissioner, tax commissioner and in other capacities. A widow and five daughters survive.

Among the Wholesalers and Manufacturers



WILL DEAL IN SANITARY FIXTURES.

The sale of sanitary fixtures will be made a feature by the Universal Sanitary Sales Co., which has just been formed at Portland, Maine. The company is composed of Albert F. Jones, T. L. Crotteau and James E. Manter. The company has been chartered with a capital stock of $200,000.

HUDSON RIVER PLUMBING SUPPLY CO. HAVE BEEN INCORPORATED.

The Hudson River Plumbing Supply Co., of Newburgh, N. Y., has been incorporated with a capital stock of $30,000. The incorporators are: A. S. Wilson, Newburgh; H. G. Webb and S. C. Allison, Beacon.

NEW FIRM OF MANUFACTURERS' AGENTS.

The Har-Ber-Den Co. is the title of a new selling organization just formed in Chicago, with offices in suite 1518 City Hall Square Building. They will act as manufacturers' agents for a number of lines of plumbing and heating specialties. Geo. A. Harper, Dennie W. Berry and H. E. Reyne, all of whom are well known to the trade, constitute the firm.

THE STERLING PLUMBING SUPPLIES CO. INCORPORATE.

The Sterling Plumbing Supplies Co., of Middletown, Del., has been incorporated with a capital stock of $100,000, to manufacture, produce and deal in water and steam heating apparatus. The incorporators are George L. Townsend, Middletown, Charles F. Curley, Julian C. Walker, of Wilmington.

CANADIAN FIRM WILL MANUFACTURE PLUMBERS SPECIALTIES.

Edmonds & Jones Mfg. Co. is the name of a concern recently organized and put into operation at Walkerville, Ontario, Can. The company will manufacture brass traps and waste and over fittings for the jobbing trade. Wm. Armstrong, formerly traveling representative for The Ireland & Mathews Mfg. Co., of Detroit, Mich., is secretary of the new company and general manager of sales.

DOMESTIC WATER SUPPLY CO., NEW YORK CITY, IN LARGER QUARTERS.

The offices of the Domestic Water Supply Co., at 39-41 Cortlandt Street, New York City, have been moved from the 12th floor to the 7th floor of the same building, where more room is available. They will utilize some of the additional space for display of their pumping equipment. They have added welded pneumatic tanks.

CENTRAL CLOSET COMPANY REDUCE STOCK.

The Central Closet Co., of Kokomo, Ind., has filed notice that their capital stock has been reduced to $70,000.

DEARBORN PLUMBING SUPPLY CO. ELECTS OFFICERS.

The Dearborn Plumbing Supply Co., 506 N. State Street, Chicago, recently incorporated, has elected A. W. Shipman president and secretary and Frank J. Fox treasurer.

CONSOLIDATED HEATING CO. ASSIGNS.

The Consolidated Heating Co., of Wellsville, Ohio, through its officers, W. H. Kelly and J. M. Coldwell, has filed a deed of assignment with Judge L. T. Farr, in the probate court at Lisbon, Ohio, for the benefit of the creditors of the company. A. G. McKenzie, a local justice of the peace, has been named as receiver of the company, and all book accounts, contracts, supplies, machinery and furniture have been turned over to the receiver. No estimate of the assets and liabilities has as yet been filed. The Consolidated Heating Co. was formed about three years ago, and took over the business of the Whitacre Boiler Co., manufacturers of residence heating plants and radiators.

BEST PIPE ENGINEERING AND SUPPLY CO. ORGANIZED.

George Best, president of the Best Manufacturing Co., of Oakmont, Pa., near Pittsburgh, Pa., for the last twelve years, has severed his official connection with that corporation and with his son, George H. Best, has formed the Best Pipe Engineering and Supply Co. The new concern will be located at 3025 Liberty Avenue, Pittsburgh.

TO MANUFACTURE PLUMBERS' SPECIALTIES.

The Michigan Foundry & Supply Co is the title of a manufacturing concern recently organized and put under operation at Canfield and Ellery Streets, Detroit, Mich. The company's product consists of plumbers' cast iron specialties, among which are adjustable closet bends, drum traps, rent caps, bell traps, bath traps, range boiler stands and laundry tray legs, all of which will be marketed under the trade name of (E. J. C.)

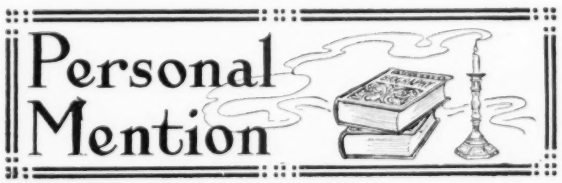
The officers of the company are as follows: President, Adam Benzing; vice-president, secretary and general manager, E. J. Crowells; treasurer, Arthur Mondary. Mr. Crowells has a wide acquaintance with the plumbing trade throughout the country which dates from his long connection with the Globe Foundry Co., as general manager.

NEW YORK MANUFACTURER MAKES ASSIGNMENT.

The Acme Brass Novelty Mfg. Co., of 182 and 184 West Houston Street, New York City, manufacturers of bathroom fittings, has made an assignment to Jacob H. Matfus. The company was incorporated in February, 1912, with a capital of $5,000, with Jeremiah Tricklinger as president.

APPLICATION FOR A RECEIVER.

Basing the action on the allegation that the company is insolvent and that the board of directors are making no effort to collect the amount due the company in unpaid subscriptions to its capital stock by three of its directors and have abandoned the business, Joseph Meyer and associates, E. C. Baver and Edward McCleary, officers of the company, have applied for the appointment of a receiver for the National Steam Heater Co., of Dayton, O. Plaintiffs claim to have been sued on an account for supplies for the company for which they were surety.



J. T. Cotton, of the Resolute Pottery Company, Trenton, N. J., has returned from his summer's rest, which was spent in the wilds of Canada and Maine.

A. D. Dennison, general manager of sales of the Sanitary Company, Cleveland, Ohio, is in the East renewing acquaintance with a host of old friends in the trade.

Frank Merwin, president of the Cooper Sanitary Company, Philadelphia, Pa., has left for the Pacific Coast, to be gone until December, in the interests of his company.

Thomas Mangan has joined the sales force of the Elgin Brass Company, New York City, and will cover Eastern territory.

W. P. Davenport, sales manager of the Wm. H. Page Boiler Company, of New York City, is spending these August days at Booth Harbor, Maine., to which place he motored with his family. Mr. Davenport drives a big "Pierce Arrow" car, and, when he was within fifty miles of Boston, he experienced the pleasant sensation of seeing a huge telegraph pole fall across his path. But his faithful car jumped it like a thoroughbred and, outside of a "gentle" shaking-up, the party was none the worse off for its experience. They say that "sensations" never come to one singly and Mr. Davenport soon after his arrival at Booth Harbor, had another thrill awaiting him, in that he had the rare opportunity of assisting in the rescue of a lot of terrified people from a burning hotel. They're now organizing a volunteer fire department up at Booth Harbor and Mr. Davenport will unquestionably be chosen as its chief.

C. W. Lanigan, purchasing agent and assistant general manger of the F. W. Webb Mfg. Co., of Boston, Mass., will act as host in September, at Maplewood, N. H., to a number of the Webb salesmen and a few prominent master plumbers of Boston and vicinity. J. A. Moore, of the Sanitary Earthenware Specialty Company, Trenton, N. J., will be an especially invited guest.

John J. Turbett, of Newark, N. J., who was operated upon recently, attended the Newark Master Plumbers' Outing on Tuesday, Aug. 21. His many friends were glad to see him around again.

John Hopkins and his brother, New York City plumbers, W. J. Crotty of Central Foundry Co., New York City, and W. Millman of Lehnert & Co., met with a serious automobile accident on Aug. 19. Crotty & Millman were badly injured.

Ed. Grote and Chas. Seiffert of the Standard Plumbing Supply Co., New York City, recently enjoyed an automobile tour through parts of New York and Pennsylvania.

President Grosswiler, of the Grosswiler Supply Co., Toledo, O., has returned from a vacation spent at Atlantic City.

"HAS ANYBODY SEEN CASEY?"

That's what about thirty-five constables and sheriffs want to know along a seventeen hundred mile jaunt that is being made by the notorious "Red Casey," alias "H. G. Weaver," the big noise of the Peerless Selling Co., of Evansville, Indiana.

Casey, who is of the "Don't Worry" fame, was last seen when he departed from Evansville on Wednesday, August

Two Hundred and Twenty-five Perch Caught by Mr. and Mrs. Weaver and Their Son Charles While in St. Joseph, Mich.

the 16th, 1913, in his famous iron steed, a Stanley steamer, and if the reports recorded enroute are correct, he's been known as the green streak ever since.

Harry covered 165 miles the first day out, making Rockville, Indiana, by evening, and reached Niles, Michigan the evening of the second day. From Niles he went to St. Joseph, thence to Detroit, and from there via boat to Cleveland, his old home, where he will visit for several days; on his return trip he will visit Columbus and Cincinnati, Ohio.

The total trip covered by Mr. Weaver will aggregate some-

thing over 1,700 miles, and he will be away about three weeks.

Accompanying "Casey" is a girl he kidnapped some ten years ago, and three orphans who bear his name; we reproduce herewith a picture taken enroute at St. Joseph, Mich., of Mr. Weaver and his family, but we will not vouch as to the ownership of the fish shown in the photograph, unless they were caught by the "Frau." "Oh you fish stories for the Home Guards when Casey arrives in Evansville."

WESTERN TRADE GOLF ASSOCIATION SEPTEMBER 4th.

The next tournament of the Western Trade Golf Association will be held at the South Shore Country Club, Chicago, on Thursday, September 4th. A train will leave the Randolph Street station of the Illinois Central Railroad at 9 a. m., arriving at the South Shore station at 9:26. Another train leaves at 12:20 p. m., arriving at the South Shore station at 12:46. The qualifying round will be played in the morning and the final rounds in the afternoon. Luncheon will be served at the club house at noon and dinner in the evening, at which time the prizes will be awarded.

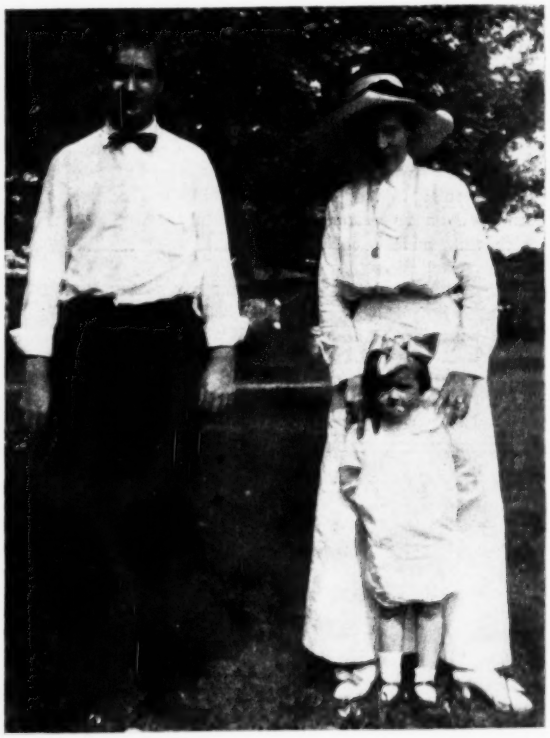
CENTRAL FOUNDRY COMPANY BASEBALL TEAM.

The baseball team of The Central Foundry Company, New York, whose picture we illustrate here, has completed, in the most successful way, the first half of their season with a percentage of .714. The management fully expects that the team will increase their present percentage before the end of the season, by which time they will have played games with a large number of representative teams in the local territory.

Winning Ball Team of the Central Foundry Co., New York City.

OUTING OF THE THOMAS MADDOCK'S SONS CO.

It was a jolly cargo that left Trenton, New Jersey, early on Saturday morning, August 16th. Thomas Maddock's Sons Co. were hosts to their employees and friends on this day and the event will go down in Maddock history as the best attended and best regulated outing which it has been the custom of this company for years past to give its employees. An absence of all intoxicating beverages was an innovation and the plan proved to be a decided success, in that the conduct of each participant was all that it should be.



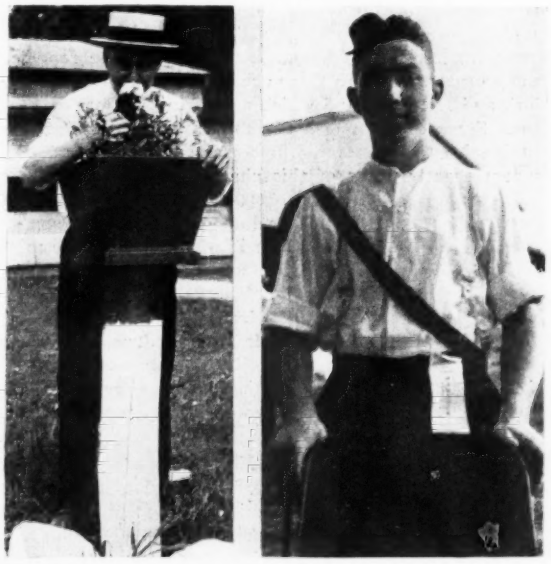
Mr. and Mrs. A. M. Maddock, jr. and the little daughter of C. S. Maddock, jr., at the Thomas Maddock's Sons Outing.

The event was staged at Burlington Island Park, a spot well suited for these gatherings and this scene of action was reached by boat from Trenton. The Maddock chef had provided an abundance of good things and the tables under the trees were overladen with the provisions he had brought. The athletic events began early and below will be seen the results.

Among the athletic events was the 100 yard dash, J. Kaster coming in first, with T. Keegan second and T. Duffy third. J. E. Crannage won the first prize in the 12-pound shot put, W. Burchell second and J. Kaster third. In the 10-yard

At the Outing of Thomas Maddock's Sons Co.—First picture, Miss Marie Moohan. A Winning Favorite. Second picture, Lee Kelly Hopelessly Entangled. Third picture, John Kelly Reducing Weight. Fourth picture, The Sales Department "In a Whirl." From left to right:. Bitzer, Spicer, Bissell, Harold Maddock and Lee Kelly. Fifth picture, Messrs. Bissell and ..inslow enjoying themselves.

potato race, A. Bainbridge filled his basket first, followed by T. Bloomfeld and H. Bird. In a similar event for the young ladies Miss Longmuir finished first with the Misses Kulse and Holliday second and third, respectively. In the 50-yard swim, the first prize was won by W. Astbury, second by J. Clark and the third by L. Ruluis. G. Robins secured the first prize in diving for distance with G. Hulse second and W. Burchell third. In the half mile run C. B. Baxter received first place, A. White second and Geo. Paul third. C. B. Baxter also



Lee Kelly is Some "Flower Picker." A Youthful Potter in Outing Attire, at the Thomas Maddock's Sons Outing.

was awarded first prize in the high jumping contest, M. Fell second and A. White third.

Particularly interesting was the "checker game" contest between 12 amateurs and one professional. The latter was pronounced a genius in that he succeeded in defeating his opponents with ease. His ability in this direction was almost weird.

It was just six o'clock when the good ship "Madrid" steamed back toward Trenton and, with Mr. Bissel on the look-out deck, no icebergs were encountered. It was a day full of good things and one which everyone enjoyed to the utmost.

OUTING OF COLWELL LEAD CO.

The employees of the Colwell Lead Company held their annual outing at Rockaway Beach on Saturday, August 23. At 1:30 p. m. the "Boys" left Lafayette and Walker Streets, New York City, and took an automobile ride to the beach. Shortly after arriving, dinner was served at Healys Hotel. After dining to their hearts' content they visited the various amusements the Beach contains.

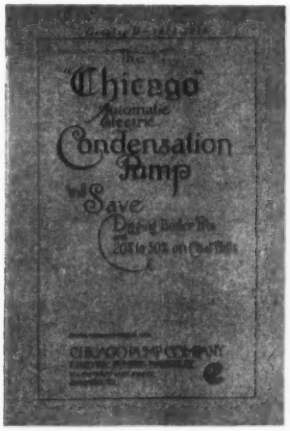
E. W. Florant, auditor of the company was chairman and manager of the affair.

EMERY SEAT IN NEW YORK CITY.

The Emery Self-Raising Seat, manufactured by W. S. Emery of Cliff Street, New York City, is being adopted, we understand, in increasing quantities by the City departments of New York City.

CHICAGO PUMP CO. ISSUES CATALOG "D."

The Chicago Automatic Electric Condensation Pumps are fully illustrated and described in a new catalog just issued by the Chicago Pump Co., manufacturers of electric pumping machinery, 904-10 West Lake Street, Chicago. Besides devoting considerable space to this type



The Front Cover Design of the Chicago Pump Co. Catalog.

of pump, some of the multi-stage turbine pumps, electric sewage ejectors, automatic bilge pumps and cellar drainers are also given attention. A copy of the catalog will no doubt be sent to those who mention "Domestic Engineering" in writing.

NEW WATER SYSTEM CATALOG OF SAMUEL SLOAN & CO.

Samuel Sloan & Co., Rochester, N. Y., have just issued a new catalog, No. 2-W, of their hand and power pneumatic water systems, shallow and deep well pumps, water

The Samuel Sloan & Co.'s Catalog No. 2-W.

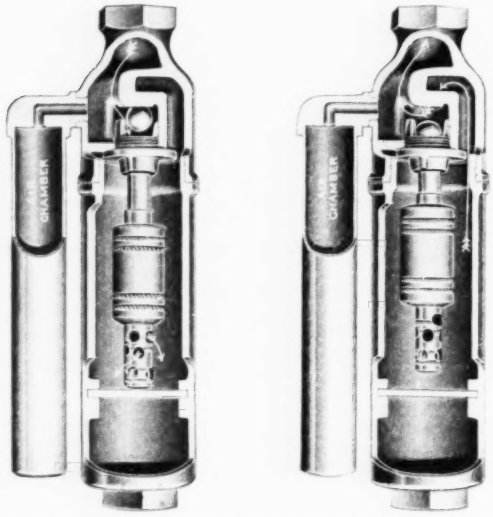
lifts and accessories. The catalog is 36 pages and cover, and is fully illustrated with halftones of the various outfits and units.

The manufacturers will be pleased to forward a copy to anyone interested who will mention "Domestic Engineering" in writing.

THE WATSON "MASTERPIECE" HEAT GENERATOR.

The object of a heat generator on a hot water heating job, the saving in money and trouble, both to the fitter and the consumer, is thoroughly understood by the trade.

The "Masterpiece" Heat Generator, it is claimed, has the two essential features that a generator must possess,



The Watson "Masterpiece" Heat Generator. First picture shows it open and the second picture closed.

namely: that it should always retain 10 pounds pressure, and that after discharging it should reseat at not less than 9 pounds.

The illustrations show the generator open and closed. It weighs less than five pounds and can be connected any place in the expansion line from the boiler to the expansion tank.

The "Masterpiece" is manufactured by the Watson Specialty Co., Terre Haute, Ind., who will be pleased to send information and prices upon mention of "Domestic Engineering."

THE FITALL HANGER STRAP.

The Fitall Hanger Strap comes in Reels of 100 feet. The plumber or fitter goes out on the job, takes with him a reel and a small supply of cotter pins. On the job he cuts off the necessary length of Fitall, nails one end to the beam or ceiling, as the case may be, swings the other end around the pipe, doubles up the extremity, thrusting same through one of the central slits, and fastens with a cotter pin.

The jobber can fit up any customer with either of the two sizes of Fitall Hanger Strap, to fit any pipe up to 6 in. in diameter, and for any length suspension.

Fitall Hanger Strap is made of galvanized, cold rolled steel, which obviates rust, and has great strength. It is manufactured by the Twisted Wire and Steel Co., 515-21 Greenwich Street, New York City, who will be pleased to send descriptive circulars to those who will mention "Domestic Engineering" in writing.

George Basulain, of Oshkosh, Wisconsin, has been appointed state plumber, to look after the plumbing in the capitol, the heating plant and the executive residence.

The Metal Market

Numerous Orders for Small Lots.

Consumers of iron have been buying freely in small lots ranging from 100 to 500 tons and the market is in a much healthier state. No very large transactions are reported in any center, although there are several foundries in New York and New England which are asking for lots of 5,000 tons. Some of the melters in the Ohio district have put out inquiries at prices for first-quarter delivery and it is evident that business of this character will be placed in the near future. A sale of 10,000 tons of basic iron Pittsburgh was made at a rather low price, but the lot was unusually large. In steel there has been some more price cutting and structural shapes are now obtainable from several makers at 1.40 cents. There has been a revision in the price of sheets and on large lots 2.20c is paid for No. 8 base. The principal sale of iron during the week was 15,000 tons of basic at $11 Birmingham, and 6,000 tons of No. 2 iron at $11. Virginia makers have sold from 15,000 to 20,000 tons of pipe iron. Quotations are as follows:

No. 2X, Northern Foundry, New York	$15.50 to $15.75
No. 2 plain Northern Foundry, New York	15.25 to 15.50
No. 2 Southern Foundry, Birmingham	11.00
No. 2 Southern Foundry, Cincinnati	14.00 to 14.50
No. 2 Northern Foundry, Chicago	15.00 to 15.50

A Strong Statistical Position of Copper.

The continued strike of copper miners in the northwest, large takings of copper by European consumers and a steady consumption in America all make for a strong statistical position in this metal. Sales during the week have not been large, but most of them have been transacted at slight concessions from the quoted price of 15.75 cents for electrolytic. The producers have the situation well in hand, however, and should they desire would be able to force prices up with remarkable rapidity. The large takings of copper by Europe amounting to 1,000 tons a day continued.

Dullness in Tin.

The tin market fluctuates within narrow limits and there is little animation. Stocks are sufficiently large to meet present requirements and the price varies between 41 and 42 cents for large lots.

Lead.

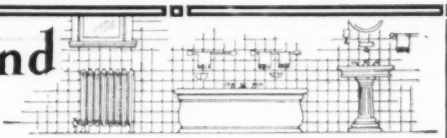
The market is very much higher due to a strike of the lead miners in Missouri and to a good demand in New York. Even at the quotation of 4.75 cents, which is maintained by the American Smelting & Refining Co., it is believed that much metal could be obtained.

Spelter.

Higher prices have again been recorded and spelter sells in New York at 5.85 cents and in St. Louis at 5.70 cents.

Readers are invited to send, for publication, news of local happenings of interest to the trade, as well as picnics, outings, entertainments, etc., accompanied by photographs where possible.

Among the Plumbing and Heating Contractors



Illinois

Chicago.

The J. J. Wade Company has recently put its men to work on the roughing in of plumbing and sewerage installation on the large piano factory of Lyon & Healy, which is to be constructed at 41st and Fullerton Avenues. The job will probably be finished towards the close of the fall months. James J. Wade, Sr., who is spending his vacation in Canada is expected back at his desk about the 15th of September.

The Thomas Conlin Plumbing and Heating Company, 3978 Cottage Grove Avenue, has just started roughing in work on a three-story automobile factory to be built at 3921 Michigan Avenue. The auto business appears to be steadily encroaching southward on this boulevard. Soon the entire length of the avenue from the downtown section to 63d street will be "graced" by automobile stores, according to predictions by business men.

Edward Baggot, the secretary and treasurer of the E. Baggot Company, 19 E. Lake Street, is expected back in Chicago within a few days. He has been spending his vacation with friends in Vermilion, Ohio.

Daniel Rock, the hale and hearty first Chicago president of the local Master Plumbers' Association, is not a supporter of "skirts" in politics, or on the police force. He said recently when in a talkative mood, that the Chicago women "cops" will be riding on horse-back before the men know where they are at. Mr. Rock says he is entirely unable to understand why a woman should be hired to arrest men. He wants to know if the male members of the force are now no longer able to collar their own sex. Home is the place for women, he declares.

Michigan

Detroit.

Johnson & Larson will install the plumbing in the Russell school which is being remodeled.

H. Shapero will install the plumbing into the block of five stores and flats to be erected at Hastings and Superior Streets.

Bids will be received by Charles A. Gadd, secretary of the Board of Education up to 4:15 P. M., September 9th, for the erection of the George M. Condon school building.

Charles P. Wilschon & Sons will install the plumbing and heating in the two story brick store, flat and theatre building to be erected on Gratiot, near Seneca streets.

McKillopp & Son will install the plumbing in the block of six brick and tile stores and flats to be erected on the corner of Field and Harper Avenues.

Architect E. A. Harley will take figures after August 26 for the erection of a tile and stucco residence to be erected on Lafayette boulevard. Bids close September 5.

Architect Albert Kahn is taking figures for the erection of a ten story steel frame, with concrete floors to be erected in Philadelphia for the Ford-Philadelphia plant. Bids are due at the office of the Ford Motor Co. September 3 at Detroit.

Architect Peter Dederichs is taking figures for the alterations and additions to brick building on Jay and Orleans streets. Bids close September 3.

White & Fisher have the plumbing and heating contract for the theatre being erected by the Enterprise Amusement Co. on St. Aubin Avenue.

George H. Saffel & Co. have been awarded the contract for installing the plumbing in the block of brick stores and flats to be erected on Jefferson Avenue, near Townsend Street.

Maine

Pawtucket.—The city physician, in his annual report, gives the plumbers a large amount of credit for the excellent health conditions existing in this city. Through the efficiency of the plumbing inspector the work done in this city is declared to be on a par with any city in the country.

Skowhegan.—The Steward & Marston Co. has been incorporated with a capital of $25,000 to conduct a general plumbing business. The officers are Ben T. Steward, president; Clair Marston, treasurer; and these and Charles R. Oliver, directors.

Pittsfield.—Fred C. Sasavant of Cambridge, Mass., plans to establish a plumbing business here. He has taken a store in the Davis Block on Middle Street.

The Master Plumbers Association of Portland (Maine) and vicinity has been incorporated with Ralph A. Godfrey of Portland as president. The other officers of the corporation are Ernest A. Wheeler, treasurer; Carroll B. Skillin, clerk; Ralph A. Godfrey, Ernest A. Wheeler, Christian Madsen, Frank A. Davis and J. H. Duffy, directors.

New Hampshire

Bethlehem.—E. F. Norwood is doing the plumbing for the new club house being erected here.

Woodsville.—G. N. Dimick plumber and steamfitter, has moved into new quarters in a building erected for him by S. D. Tilton.

Laconia.—Arthur S. Kellogg, of Boston, an engineer employed by the county commissioners and a committee of the state legislature, is preparing plans and specifications for a new heating plant and other improvements at the county farm building.

Exeter.—The remodeling of the Hall Place schoolhouse is in progress. The school will have a new heating plant and the sanitary arrangements will be renovated and improved. The contract has been placed with Lord & Perkins, or North Berwick, Me. This firm has had a number of large contracts in this city in the past.

Vermont

White River Junction.—E. E. Bagley & Co. have a force of men at work installing a complete plumbing system in the new building of the Green Mountain Card Company on North Main Street.

Brattleboro.—W. T. Mooney has contract for plumbing and heating systems in Herbert G. Barber's new house on Western Avenue and in Mrs. Clara Evans' house at Guilford.

Burlington.—The G. S. Blodgett Co. has been awarded the contract for plumbing of the new Flanagan hotel at Malone, N. Y. The building will be a six-story structure located near the railroad station in Malone and will contain 180 rooms with 75 private bath rooms besides the public toilet rooms. This is the fourth large hotel for which this company has had the contract within the last two years.

New Jersey

Riverside.

E. C. Fish has been awarded the contract to install heating and plumbing in the new residence of C. Taubel. Cost, $4,000.

E. A. Rogers has been awarded the contract to make extensive alterations in the Soldiers' Home in Vineland, N. J.

Camden.

L. C. Simpson Plumbing Co. has been awarded the plumbing in the two new schools that are being erected here.

Rhode Island

Woonsocket.—George Grenord has been awarded the contract for steam heating in the new building of the National Union bank at the corner of Main and Ascension streets.

Woonsocket.—An ordinance providing for the appointment of a board of plumbing examiners for this city is under consideration by the city council. The ordinance was introduced by Councilman Louis J. Archambault. It provides that the board shall consist of three members the first, a practical plumber, the second the plumbing inspector and the third a member of the board of health. The board would be appointed by the mayor and would have authority to make rules, hold examinations and issue licenses to master and journeymen plumbers.

Virginia

Norfolk, Va.—The public utilities committee of the council, of this city, at a meeting held recently, took up a resolution introduced by Mr. Roskam for the establishment of public comfort stations and drinking fountains. This resolution provided for six stations. The committee sent the ordinance to the Board of Control for estimates.

New York

New York City.

A. A. Borner has opened a new plumbing and heating shop at 1121 Ogden Avenue, and would be pleased to receive catalogs.

Jacob Muller, of 408 East 146th Street, is opening a new shop at 482 Willis Avenue and is contemplating starting a hardware department in connection with his plumbing business. He has several large contracts, among them the plumbing in ten twenty-one family apartment houses at Bathgate Avenue and 189th Street.

John J. Donahue, of 232nd Street and Broadway would like to receive catalogs from manufacturers. He has a number of contracts for installing plumbing and heating, among them being an apartment house on Sedgwick Avenue.

Pfeiffer & Soellner, 1263 Jerome Avenue are the successors of Pfeiffer Bros. They would appreciate receiving catalogs on heating.

Fred A. Schmalstick, formerly a member of the J. J. Foley Co., Inc., located in Highbridge, has opened a plumbing and heating establishment at 806 East 180th Street, and would like to receive catalogs.

Geo. P. Engeldrum, formerly of Jennings and Chisholm Streets, has moved to 797 Jennings Street.

John V. McEvely & Son have removed their business from Tremont & Daly Avenues to 1441 Williamsbridge Road.

New Rochelle.—Noonan Bros., 14 Grand Street, have been awarded the contract for installing the heating and ventilating in the new school located at Second Street, in this city. Contract amounts to $10,000. The contract for the plumbing of this school was awarded to Louis Goss, of Second Street and amounts to $16,000.

Newburgh.—The contract for plumbing in the new ferry house was awarded to Hensel and Mabie.

A WELL ARRANGED SHOW ROOM IN NEW YORK STATE.

Geneva, N. Y., is not behind the rest of the state in the matter of attractive show rooms of its master plumbers. Emig & Hatmaker of that city have a well arranged

Showroom of Emig & Hatmaker, Geneva, N. Y.

salesroom, the arrangement of their brass goods and other parts is particularly neat. On one side of the

room, half way back, is arranged a set of drawers extending from a shelf waist high to the ceiling, in which are kept, under proper label, all of the small parts that are often found in their original boxes scattered about a plumbing shop, where attractiveness it not considered essential. The business like appearance of the shop is evidenced in our illustration herewith. The firm is well known in that part of the state having done extensive business through several counties.

Connecticut

Hartford—A certificate of incorporation has been filed at the office of the secretary of state by the F. A. Shaffer Company of Bristol, who will engage in "all kinds of plumbing, roofing, heating and lighting work." The incorporators are Francis A. Shaffer, John H. Bride and George P. Allyn. The business to be taken over by the new corporation was originated by Mr. Shaffer, who later had associated with him his brother-in-law, Ray B. Marsh, and the company was known as the Shaffer-Marsh Company. Later Willis H. Bacon and George P. Allyn became interested in the concern and a branch was opened at Hartford. The rapid increase in business has made a wider range necessary as regards capital, hence the new corporation.

Hartford—The Wilbur S. Steele Company has been awarded the contract for installing a new heating plant in the old town hall building at West Hartford.

Hartford.—The high school building committee has authorized the chairman to sign the contract for the heating plant for the new building with Libby & Blinn.

Bridgeport—The contract for the plumbing in the handsome new residence on Fairfield Avenue for Charles Logan, Jr., will be done by S. C. Eames & Co.

John J. Scanlon has the contract for plumbing in the addition to the new Logan building on Main Street.

Work has been started on a fine new residence on North Avenue for T. F. Reilly and N. B. Curtis & Co. has the contract for the plumbing and furnace heating. The same concern also has a contract for heating and plumbing in a seven room bungalow for L. W. Brown on Hillhouse Avenue.

Five new two-apartment houses are to be erected on Bond Street by Contractor Edward Makaro and he has placed the plumbing contracts with Doherty & Freeman. Each apartment will contain four rooms and bath, set tubs and other modern conveniences.

L. Vecsey has a number of important plumbing contracts. He is to do the plumbing in a six apartment house on Worden Avenue for Geza Vecsey; plumbing in a new residence on Hanson Avenue for John Szekers and similar work in a three-family house on Orland Street for John Troth.

Seifert Brothers will do the plumbing in connection with alterations to be made to H. L. Haeussler's house on Union Avenue.

The contract for plumbing in the residence on Linden Street, Seaside Park, for Dudley Morris, has been placed with W. K. Sherwood.

Henry Cope has a contract for plumbing in house on the same street for John Ferris.

Plumbing in a store and tenement building being erected on Barnum Avenue for F. E. Kolwicz will be done by Doherty & Freeman.

Lynch & Co. has the contract for plumbing and steam heating in a house on Merchant Street for Annie Luckner.

Contractor J. J. MacFarland has secured a permit to build a three family house on Hollister Avenue. M. Ginsberg will do the plumbing. Work will be started at once.

W. B. Curtis & Co. has the contract for plumbing and heating in a two apartment house on Main Street for F. L. Langhammer.

Plumbing and hot water heating in a house on Easton Street for Charles Bradstreet will be done by Donahue & Wheeler.

Meriden—Frank C. Grussi and Alfred A. Hasbrouck have formed a partnership to conduct a plumbing and heating business. The firm will be known as Grussi & Hasbrouck and will have headquarters at 90 Franklin Street. The partners are both young men with a wide practical experience at the business.

Ansonia—John Bazley has been appointed as inspector of plumbing by Mayor Burton and confirmed by the aldermen. The appointment of an inspector followed the adoption by the city of new plumbing ordinances. The inspector receives no salary, but is entitled to collect a fee of $3 from the owner of each piece of property inspected.

Waterbury—An eight-room addition is to be built to the Washington school. Barlow Bros. will do the plumbing.

George W. Miner has a contract for plumbing and heating in connection with changes to be made at the Field house at the corner of Linden and Grove Streets. Mr. Miner also has a similar contract at Alfred Hart's house on Grove Street.

New Haven.—Menzies & Menzies are doing the plumbing and the Buckingham Routh Co. the heating in the handsome and modern residence being erected on Humphrey Street for Prof. A. W. Phillips of Yale.

The new house on Winthrop Avenue for Carrie L. Harriman is well under way. J. M. English has the plumbing and heating contract.

Herman Penn is doing the plumbing and heating in a house on Osborn Street for F. D. Shumway.

The contract for plumbing, heating and tinning in a four-family house on Winthrop Avenue for Birkowitz Brothers, is in the hands of Louis Miller.

G. H. Macfarlane has been awarded the contract for plumbing and heating in a two-family house on Pendleton Street for G. E. Smith.

H. A. Raban has the plumbing contract for a house on Irvington Street for F. W. Donnelly and another on Burnell Street for the same owner.

J. C. Brown has been awarded the contract for plumbing and heating in a house on Dayton Street for Mrs. Alice M. Holton.

Contractor E. E. Lohse has just completed plumbing and heating a new house on Third Avenue for Harry Peck.

Waterbury.—William H. Hodges, the contracting plumber of Oakville, has a number of contracts in hand including the following:

Plumbing, including lavatories, toilets, etc., and water connections, at the Country Club's new building at Watertown; plumbing in new one-family house in Watertown for William Lamphier; plumbing in three family house in Oakville for Jean Neaden; complete plumbing in new house of Edward Champagne, Newton Heights. Mr. Hodges also has been awarded the contract for plumbing in new frame house of E. R. Kaiser at Thomaston.

Pennsylvania

Philadelphia and Vicinity.

E. R. Sabin & Co., of 237 Broad Street, have been awarded the contract to install a heating system in the home of Dr. Golden, 1722 South Broad Street. Consideration, $1,800.

A. T. Elder, of 14 South Broad Street, has been awarded the contract for heating and plumbing in the residences at 1514 to 1518 Diamond Street, for Wm. Elshaw. Consideration, $3,500.

H. T. Campbell, of 29th and Thompson Streets, has been awarded plumbing and heating contract in the residence of M. Kern on Cambridge Street.

T. T. Rockett, of North Nineteenth Street, has a lot of school work on hand and he has also been awarded the heating contract in the residence of Mr. Myers, at 748 North Twentieth Street. Consideration, $1,600.

M. J. Lenihan, of 134 North Forty-second Street, has been awarded the contract to install vacuum heating system in the home of Geo. Maetrick, at 5125 Arch Street.

Edw. F. Roberts, of Twenty-seventh and Columbia Avenue, has been awarded the contract to install new plumbing and heating in the Presbyterian Church, at 122 Spruce Street. The contract amounts to $2,500.

Hicks & Bros., of North Eighth Street, have been awarded the contract to install a new drainage system in the Reading Terminal.

F. P. Speth, of Fifth and Erie Streets, has the contract for plumbing an operation of 20 new houses in Olney, Pa., for Mr. Branegan.

A. McClintock, of Ridge Avenue, has been awarded the heating contract in the residence of W. R. Becker, 1627 Ridge Avenue. Consideration, $1,375.

H. Manning, of 825 Spring Garden Street, is installing new plumbing in two new residences in Bycote, Pa., for Mr. Miller.

Hoben & Doyle, 21st and Pine Streets, have been awarded the contract to make alterations to the plumbing in the new building which will be occupied by Markowitz Brothers, at Third and Market Streets.

Herbert Manning, 825 Garden Street, has just been awarded the plumbing in the new residence which is being erected in Swarthmore, Pa., for E. Jackson.

J. H. Wohlfeld, of 7th and Jefferson Street has been awarded the contract to install new water supply system in the Peerless Paper Box Factory, and he has just completed the installation of men's toilet rooms in the Roxford Knitting Co's. factory.

Chas. Jann, of 412 Green Street, has the plumbing and heating in some new residences which are going up in Logan, Pa.

Wm. Berry, of 1911 Columbia Avenue, has been awarded the contract to install new plumbing in the residences at 1520 and 22 North 18th Street. Mr. Berry also reports quite a lot of jobbing on hand for this season.

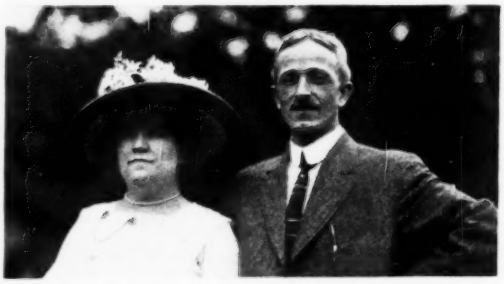
T. F. McGown, 29th and Girard Avenue, has been awarded the plumbing and heating contract in the residence of L. J. Reilly, 2401 Jefferson Street. Cost, $1,470.

H. L. Roberts has been awarded the contract to install heating in the properties at 1835 and 1837 Fitzwater Street for Mrs. B. Conley.

Wm. F. Hetzel & Co., Frankford, have been awarded heating and plumbing in the building at 2679 Frankford Avenue for E. Able. Cost, $1,385.

A WELL-KNOWN PHILADELPHIAN AND HIS WIFE.

One man whom everyone attending the National convention at Philadelphia last June will remember, is Robert H. Pflug-Felder of the City of Brotherly Love. He it was who presided over the registration desk—and a busy



Mr. and Mrs. Robert H. Pflug-Felder, Philadelphia.

man was he. Naturally his own business was neglected during the convention—he has a prosperous shop at 8th and Norris Streets. Mr. Pflug-Felder is also secretary of the Plumbers' Credit Information Bureau.

Our photograph, taken by one of the "Domestic Engineering" representatives, shows Mrs. Pflug-Felder beside her husband.

Pittsburgh and Vicinity.

Geo. H. Soffel Co., has been awarded the contract for the installation of a new system of hot and cold water pipes and a water heater in the court house. The contract amounts to $6,300.

The Bartlet-Kennedy Co. has been awarded the steam heating contract for the new Peoples National Bank Building at Steubenville, O. The work is now in progress.

Plumbing and heating contracts for the four-story brick and granite fireproof building for the University of Pittsburgh have just been awarded. The plumbing work has been sub-let to the Weldon-Kelly Co., of Wood Street, while the heating contract was secured by the Iron City Heating Co., of the Northside. The contracts are to be completed this fall. The total construction cost of $250,000. The same company will install the plumbing in J. P. Loughney's $25,000 store building.

Among the smaller plumbing and heating contracts awarded in the Pittsburgh district during the last week are the following:

Harry Wolf, of Greensburg, Pa., has been awarded both plumbing and heating contracts in the $7,000 residence of Elmer E. Shaulis, at Greensburg.

R. S. Clark, of Franklin, Pa., will do the heating and plumbing in the $20,000 store, office and theater building being erected in Franklin by B. H. Printz.

W. N. Sauer will do all the altering in the plumbing system of the Pitt Theater of this city, although the original plumbing contract was only finished about a year ago. Anderson & Darrach will remodel the heating system of this house.

The Gibson Plumbing Co., of Homestead, Pa., has been awarded the plumbing contracts in the $200,000 school building being erected by the Board of Education at Dubuque, Pa., which is five miles east of Homestead.

Robert Edward's Sons of Cannonsburg, Pa., will do the heating in the $4,000 residence being built at Houston, Pa., by C. L. Reed.

Massachusetts

Boston.

Examinations for plumbers' licenses are to be held as follows:

Boston—1st Saturday, September 6.
Springfield—3rd Saturday, September 20.
Boston—1st Saturday, October 4.
Fall River—3rd Saturday, October 18.
Boston—1st Saturday, November 1.
Worcester—3rd Saturday, November 15.
Boston—1st Saturday, December 6.
Lowell—3rd Saturday, December 20.

Boston.—Mayor Fitzgerald has approved contracts for extensive repairs to heating apparatus in the various school houses of the city. Contracts awarded to F. W. Zemier & Co. amount to $2,475; to Laskey & McMurrer, $3,190; and to the Bay State Heating Co., $2,307. Other bidders were Ingalls & Kendricken.

The mayor also has approved a contract with P. J. Sullivan & Co. for installing steam heating and ventilating apparatus in the Wendell Phillips school for $14,990. Other bids for the work were as follows:

Horn-Furlong Co., $16,075.
Bay State Heating Co., $17,170.
J. P. Dwyer, $17,777.
F. W. Zemier, $16,494.
Huey Bros., $20,887.
Laskey & McMurrer, $17,389.
J. J. Hurley & Co., $16,338.

Springfield.—The Oliver & Howland Company, which started in the plumbing and steam-fitting business 32 years ago with a basement shop 20x30 feet, has just opened new quarters in the recently completed Massasoit block. The business was established by A. M. Gifford and Hiram Oliver, but a year later Stephen H. Howland bought out Mr. Gifford's interest and the firm of Oliver & Howland was formed. A. J. Perkins and John G. Howland learned the trade with the firm and subsequently became partners. The business has grown steadily until today there are 50 people on the pay-roll and the new plant occupies a floor space of 25,000 square feet. For 12 years the firm occupied a store on Taylor and Worthington Streets, from which they have just moved. For 20 years the concern handled the work of the Boston & Albany railroad in this vicinity. They have had plumbing contracts in Florida, Texas, California and other states and in Canada as well as doing an extensive home business.

Worcester.—Bids for steam heating apparatus for the proposed addition to the North High School have been received by Mayor George M. Wright and Supt. of Public Buildings George C. Halcott has been authorized to prepare a contract for the work with Nicholas J. Smith, the lowest bidder, at $4,250. Other bidders were O. S. Kendall & Son, $4,726; A. Burlingame Co., $4,588; M. D. Holmes & Sons, $4,429, and Central Supply Co., $4,234.

Boston—Peter J. Kenney, a plumber of Cambridge, has filed a petition in bankruptcy. His liabilities are given as $5,785, and his assets, $4,300.

Northampton.—The Wyckoff & Lloyd Co., of Springfield has been awarded the contract for installing a new heating and ventilating plant in the high school annex, at its bid of $10,025. There were four bidders of whom the Springfield concern was the lowest.

Maryland

Baltimore.

The work of the plumbing division of the Board of Health is extensive and exceedingly taxing. There are twenty-three men employed, one chief, seven clerks, fifteen inspectors. The work is admirably systematized and on the files may be found plans for plumbing of new buildings, sketches of changes in old plumbing and the plans of house connections with the new sanitary sewers besides the records of sanitary inspections. Permits must be issued for all of this work and a careful watch kept of the execution of the same by the plumbers. For instance, the past year showed that 2,541 permits were issued for interior plumbing, 439 alley permits, 12,883 private connections, making a total of 15,863. There were 29,743 plumbing inspections and 12,656 sanitary and drain inspections. There were 14,291 permits to connect up houses and 4,252 miscellaneous permits issued.

The mayor is strongly in favor of creating an effective agency to handle complaints arising from troubles from the special operations of the city in connection with the new sewerage system, and other operations. The city is often subjected to heavy damages owing to delays in locating the cause of a complaint and fixing upon the department or official responsible for the trouble. The mayor is of the opinion that something in the nature of a special complaint clerk should be created who would be invested with sufficient authority to meet any exigency that might arise. This should be done, the mayor thinks, by an engineer, familiar with municipal operations and who is sufficiently skilled in the technique of engineering to be able, upon personal examination of the actual complaint itself, to detect the department or official responsible for the trouble. The mayor thinks this complaint clerk should be provided with a motorcycle so that on the filing of a complaint he can hustle to the premises and make a quick personal examination. He should be invested with sufficient authority to compel the responsible city department or official to take immediate steps for the relief of the trouble. By this method of quick examination, of quick determination as to who is responsible, of quick action in providing effective relief to the afflicted property—the city will be enabled to escape heavy costs in the way of damage suits.

Wade B. Wheeley, a well-known and well-liked journeyman, has opened a plumbing shop at 2404 East Chase Street.

Frank B. Holden, whose skill as a journeyman is known in about all of the cities along the Atlantic Coast, has opened a shop at 2003 East Biddle Street.

For the last five or six years the five plumbers of Frostburgh, W. H. Dennen, Louis Stanton, Frank J. Nairn, D. B. Pue & Co. and G. M. Mayer & Co., have been doing all the connecting work for Frostburg people who use natural gas in their households. Suddenly and without warning the gas company decided to do gas-fitting itself for its patrons. The plumbers mentioned above deem this an oppression, and have asked the Public Service Commission for relief. They say they have immense amounts of stock on hand and will suffer great financial loss.

Charles A. Sommers has opened a plumbing shop at Lakewood Avenue and Jefferson Street.

If You Handle the Plumbing on That New School

Write us quickly for facts and figures on the

Bowlus "Royal"
AUTO PNEU MATIC WATER CLOSET
With Our Special Juvenile Bowl

It's worth the while of any man to know of service-giving equipment. Besides, it frequently puts him in the confidence of builders.

Write today.

The Bowlus Mfg. Co.
Springfield, O.

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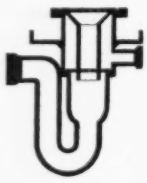


Why not help keep the automobile owner out of Court? YOU can't stop his speeding, but you CAN equip his garage with

THE WIEBEN GASOLINE AND OIL SEPARATOR

which positively separates all Gasoline, Oils and volatile liquids from drains and waste pipes, preventing them from entering public sewers.

THE WIEBEN meets the requirements of the new MUNICIPAL EXPLOSIVE COMMISSION. All oils collected and drawn off by gravity, or forced to desired points by mechanical means.

Costs less to install, and is the most positive device manufactured.

THE JOHN WIEBEN CO.
NEW YORK

The MURDOCK "Bubble-Font"
A Practical Out-Door Drinking Device

It's not a fancy drinking fountain that gives you more trouble than it's worth after it's installed. It's built for service of the roughest kind.

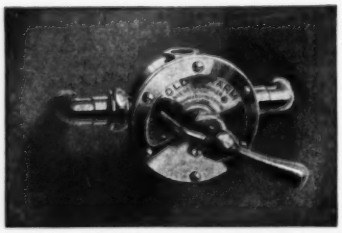
Anti-Freezing—Self-Closing —Non-Pollutable

Just the thing to stand the wear and tear of a school yard, public street, park, etc. Always "on the job," winter as well as summer because it is anti-freezing.

Send for our descriptive booklet giving full information

The Murdock Mfg.& Supply Co.
Cincinnati, Ohio

SHOWERS WITH NIEDECKEN MIXER



PATENTED

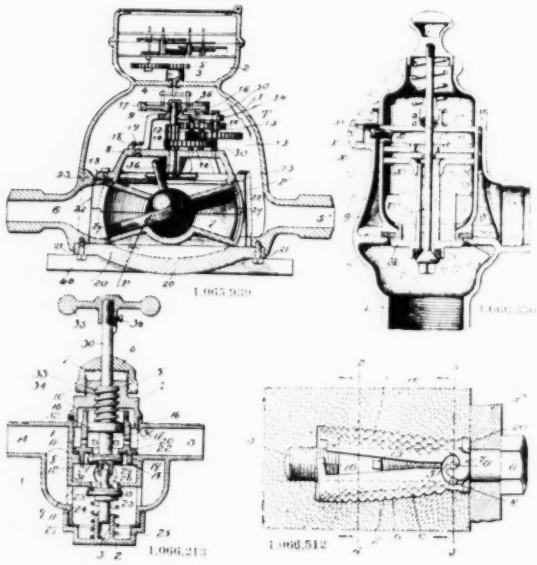
Write for Bulletin No. D 5.

HOFFMANN & BILLINGS MFG. CO.
MILWAUKEE

Patents

Plumbing Department.

1,065,939. Water-Meter. Frederick W. Hanks, Cleveland, Ohio. In a water meter, a main case, having an opening in its bottom and oppositely located inlet and outlet openings and provided with vertically arranged ribs spaced upon its inner surface, a measuring chamber located within said main case, said chamber having vertical ribs upon its outer edges corresponding to the ribs within said main case, the meeting surfaces of said ribs on case and chamber being tapered upwardly, said chamber provided with an outlet opening registering with the outlet opening of the main case, and also provided with an inlet opening adjacent to said outlet opening and a partition separating said openings in the measuring chamber, said ribs in said main case and measuring chamber forming a passage whereby the fluid is conducted over said measuring chamber, substantially as described.



1,066,350. Flushing-Valve. Earl G. Watrous, Chicago, Ill. In a flushing valve, the combination of a cylinder, a piston therein, a main valve having a tubular stem connecting it with said piston, a supplemental valve having a valve stem extending longitudinally through the main valve and its tubular stem and the cylinder to the upper side of the latter and operating to control a passage leading from the pressure supply through the main valve and its tubular stem to the cylinder, a supplemental piston fast upon the supplemental valve stem above the main piston and within the same cylinder, a push button upon the upper end of the supplemental valve stem for depressing the latter to open the supplemental valve, and a spring operating to close said supplemental valve; substantially as described.

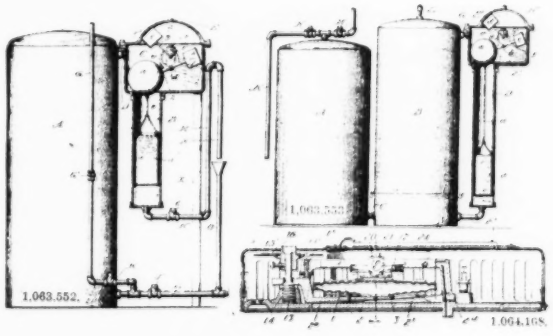
1,066,213. Antiscalding-Bath Shower-Valve. Charles H. Moore, deceased, by Carrie L. Moore, administratrix, New York, N. Y. In a mixing valve, a body having an inlet passage for cold water, a chamber for the cold water,

an inlet passage for hot water, a mixing chamber, an outlet passage from the mixing chamber, means controlling the admission of cold water to the cold water chamber, means controlling the passage of cold water from the cold water chamber to the mixing chamber, the last named means being adapted to be opened in advance of the closing of the means controlling the admission of cold water to the cold water chamber, and means controlling the admission of hot water to the mixing chamber, substantially as described.

1,066,512. Expansion-Bolt. Daniel Masor, New York, N. Y. In an expansion bolt, the combination of a pair of pivoted jaw members provided with bowed and roughened outer surfaces, a threaded bolt passing through the jaw members, a tapering nut mounted on the threaded bolt, a locking pin mounted on the pivoted ends of the jaw members, projections mounted on the jaw members and adapted for coacting with the locking pins for holding the pivoted jaw members in the closed position until the turning of the bolt, and a projecting lug mounted on the lower end of one of the jaw members and arranged for contacting with the tapering nut for the purpose set forth.

Heating Department.

1,063,552. Pump Device. John H. Kinealy, Ferguson, Mo. A pump device comprising a primary vessel, a secondary vessel, a pipe connecting said secondary vessel to said primary vessel, a suction pipe having means whereby flow therethrough from said device is prevented, a discharge pipe for said primary vessel having means whereby flow therethrough into said vessel is prevented, a discharge pipe for said secondary vessel having means whereby flow therethrough into said vessel is prevented, means whereby steam is supplied to said device, means whereby water is supplied to said device, and means governed by the quantity of water in said secondary vessel whereby steam and water are alternately admitted into said secondary vessel, substantially as described.



1,063,553. Pump Device. John H. Kinealy, Ferguson, Mo. A pump device comprising a closed primary vessel, a closed secondary vessel, a pipe connecting said vessels near the bottom, a suction pipe connected to said primary vessel and having means whereby flow therethrough from said vessel is prevented, a discharge pipe connected to said primary vessel and having means whereby flow therethrough into said vessel is prevented, an air valve on said secondary vessel, a steam pipe connected to said secondary vessel, a water pipe connected to said secondary vessel, and means whereby steam from said steam pipe and water from said water pipe are alternately admitted to said secondary vessel, substantially as described.

BAD TRAPS

are as bad as bad eggs and far more costly. The cautious seldom err. CLEAN SWEEP TRAPS keep the home sanitary. They never air bind, others do. The Government uses them on its work as well as most of the plumbers in the country.

In Lead and Brass.

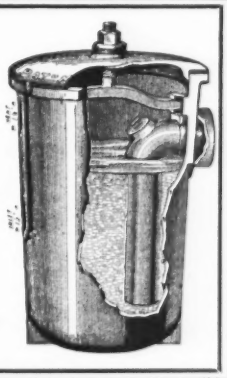
Detroit Sanitary Supply Co.

Sole Manufacturers

Antoinette St. & Second Ave. Detroit, Mich.

Eliminate Grease-Clogged Waste Pipes with the

BOSTON Grease Trap



It is easy to install. Very simple and durable in construction and can be quickly and easily cleaned.

By installing it first you avoid all future grease troubles.

Full particulars for the asking.

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South Boston, Mass.

The Emery Self-Raising Seat

Patented 1908-09

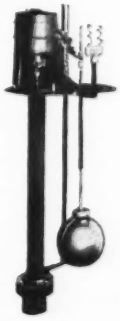
Automatic stop prevents swinging back too far.

No weights. Close roughing in. Heavy cast brass hinges. Seats of any style can be furnished with these hinges.

Power furnished by four Electro-Galvanized Steel Springs, of graduated lengths and diameters, confined in each hollow post.

Write for Sample on Approval

WM. S. EMERY, 74-78 Cliff St., New York City



Is Your Basement Flooded?

Is your Hydraulic Cellar Drainer stopped up with shells, fish or lime, or is the water pressure operating it too weak? With the

"Little Giant Electric Cellar Drainer"

you can overcome all the above difficulties—it has plenty of power, is Oil Lubricated throughout and is the SMALLEST, NEWEST and BEST ELECTRIC BILGE PUMP on the market.

Write now for Particulars

Chicago Pump Co., 903 W. Lake St., Chicago

"How Plumbers Can Make More Money"

THE CAMERON SYSTEM OF SEWAGE DISPOSAL PATENTED

We want every Plumber in the world to have our booklet, "HOW PLUMBERS CAN MAKE MORE MONEY."

This Booklet tells, among other things, of

The Cameron System of Sewage Disposal

It proves conclusively that the installation of this system will yield you a handsome profit, and make possible the sale of more plumbing fixtures.

SEPTIC TANKS FOR RESIDENCES are becoming more universally used every day, and the wisest plumber is he who first familiarizes himself with ALL SYSTEMS before making installations.

The CAMERON SYSTEM is built of either reinforced concrete, or pure ingot iron.

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It's Self-Closing

The Cock of the Walk

Here is a basin cock that closes perfectly under any water pressure, high and low.

To renew the worn rubber seat it is only necessary to unscrew the union nut, without shutting the water off.

It can be repaired under full pressure and requires but an eighth turn of handle to give a full steady flow of water.

So simple and perfect is the mechanical construction (double-ball-bearing), that a child of two years can easily operate it.

It's a basin cock that makes a satisfied and pleased customer wherever installed.

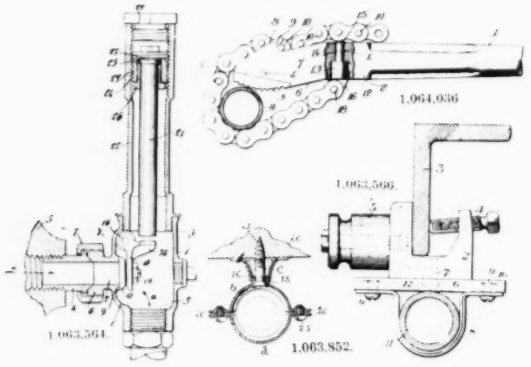
Full information on request.

Mfd. by

The Imperial Company
Grove City, Pa.

1,063,564. Thermostatic Valve. Robert S. Mayer, Norwood, Ohio. In a thermostatic valve, a combination of a casing having a valve-seat therein whose longitudinal projection extends laterally, said valve-seat provided with an opening which communicates with a source of pressure-supply, said casing having an outlet, a valve for said valve-seat, said valve having a pivot thereabove in said casing for normally gravitating said valve against said valve-seat in closed relation, and an expansion-member acting on said valve for pressing said valve against said valve-seat, the line of operative expansion of said expansion-member being transverse to the longitudinal projection of said valve-seat, substantially as described.

1,064,036. Chain Wrench. Arthur J. Whitfield, Boston, Mass., assignor to Trimont Manufacturing Company, Roxbury, Mass. In a chain wrench, in combination, a head having a jaw, a stud rotatably mounted in the head at the rear of the jaw, a chain, a transverse pivotal connection between one end thereof and said stud, eccentric to the axis thereof, and means on the head to engage detachably the free end of a bight of the chain passed around the jaw.



1,063,852. Pipe-hanger. Lewis A. Carpenter and Richard Middleton, Revere, Mass. A pipe-hanger of the class described, comprising a sheet metal bell having a head provided with an opening, a sheet metal pipe engaging member having a concaved substantially semi-circular pipe engaging portion having an opening whose walls are extended outwardly to form a nippe which is extended through the opening in the head of the bell and expanded to engage said head and lock said member to said bell, and a second sheet metal pipe engaging member coöperating with the first mentioned member, substantially as described.

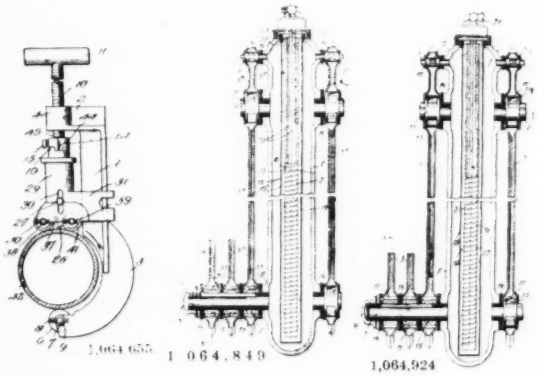
1,063,566. Pipe Hanger or support. George H. McFeaters, Johnstown, Pa. A device of the character described, comprising a support having means for clamping it to a structural element, a single channel member extending in a transverse direction with relation to the pipe, a pipe supporting strap, means for securing the ends of the strap to the ends of the channel member, and means for securing the channel member to the support; substantially as described.

1,064,655. Pipe-Cutter. Willie Harry Johnson, Waco, Tex. A pipe-cutter comprising a standard having at one end a lateral arm provided with a threaded bearing, and at the other with an arc-shaped extension for partially encircling the pipe, a disk cutter having a double cutting edge journaled at the end of the extension, a sleeve movable on the standard toward and from the disk cutter, rollers on the sleeve for engaging the pipe, a holder slid-

able in the sleeve and provided with a recess in its upper end internally threaded in the opposite direction to the bearing, and at the same pitch, a connecting member seated in the upper end of the sleeve and provided with a threaded stem engaging the recess, means for limiting the movement of the holder in the sleeve, a cutting blade secured in the holder, a rod threaded into the bearing of the lateral arm, and a rotatable connection between a connecting member and the rod.

1,064,849. Radiator. John F. Monnot, Paris, France. A sectional radiator comprising in combination a vertical column provided with heating means therein and a plurality of vertical radiator sections, said column and sections being provided with lower intercommunicating circulation ports near their upper ends, and also provided with intercommunicating air and vapor circulation ports above said upper ports and above the normal water level of the radiator, whereby communication between the column and the sections above the upper circulation ports is provided for, substantially as described.

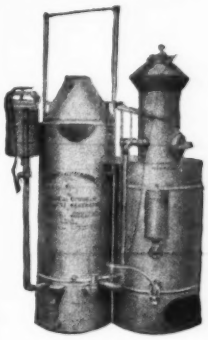
1,064,924. Radiator. John F. Monnot, Paris, France. A radiator comprising in combination a column and a plurality of radiating sections, the said column and radiating sections having registering apertures for the flow of fluid from one to another, and means for holding said column and sections together, comprising rods provided with circulation passages in their sides, said rods passing through said registering apertures and substantially filling same, except for said side passages, the inner end of each rod secured to the said column, the outer end of each rod provided with means to force the radiating sections together, and ported spacing bushings of an internal diam-



1,064,655. 1,064,849. 1,064,924.

eter greater than the diameter of said rods within said radiating sections and surrounding said rods and spaced away therefrom, whereby free circulation of the fluid within the radiator between the column and the said radiating sections is permitted, said bushings serving to prevent collapse of the radiating sections.

We don't want you just to subscribe to "Domestic Engineering." We want you to read it. We don't want you just to read it. We want you to like it real well. If you like it and think it is a good thing, push it along. You can do it by sending in news of your local happenings and articles that are of interest to the trade.



GIVE your Customers Light made by the IDEAL EPWORTH Generator which is guaranteed to give satisfaction and each sale will bring you another.

Ideal Epworth Acetylene Co.

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Branch Offices:
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The Turbine Ejector Pump

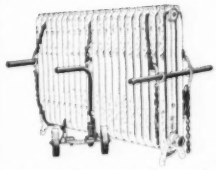
The Latest and Best Vacuum Pump
For All Vacuum Heating Systems

Applicable to both return line and air line vacuum systems.
Contains neither pistons, valves, springs, belts, gears nor pinions.
Noiseless in operation. Automatically controlled.
Economical in power consumption.
Practically unlimited life, needing no expert attendance.

For illustrated catalogue, giving range of sizes and complete information, address

Fisher-Sweeny Bronze Company
Sole Manufacturers Hoboken, N. J.

The Steamfitter's Best Friend



To easily and quickly get that large radiator up and down narrow crooked stairways and halls, you need

BUELL'S COMBINED CARRIER AND TRUCK

This carrier is strong, adjustable and durable—saves labor, time and strength, and pays for itself on the first job.

Write for details and prices.

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Detroit Valve and Fittings Co.

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Malleable Iron Fittings and Special Malleable and Grey Iron Castings. Galvanizing and Japanning.

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Write for Catalogue

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Advertisements under this heading 4 cents per word per issue, address included. Remittance to be made with order. To insure insertion copy should be received not later than Wednesday morning.

Situations Open.

WANTED, AT ONCE—MAN BOOKkeeper, one acquainted with Plumbing and Heating business preferred. Send reference, state experience and salary expected. Address Evans Plumbing & Heating Co., Freeport, Ill. 8-23-30-9-6

WANTED: SALESMEN CALLING ON the wholesale plumbing trade to handle a line of laundry trays on commission. Address Box 985, care Domestic Engineering, Chicago. 8/9-16-23-30

WANTED: AT ONCE, TWO STRICTLY first class plumbers and two steam and hot water fitters. Steady work. Union shop. $5.00, eight hours. Missouri River town. Address Box 989, care Domestic Enginering, Chicago. 8/30-9/6-13.

For Sale.

FOR SALE: PLUMBING AND HEATing business. Established nine years in growing mill town. Will make any reasonable terms. Death of owner reason for selling. Address Box 990, care Domestic Engineering, Chicago. 8/30.

FOR SALE—15 tables, high-pressure steam, for catalogues or advertising purposes. Copyrighted. Address P. O. Box, 565, Hammond, Ind.

FOR SALE—Patents, patterns, jigs, dies and some unfinished stock for the best automatic instantaneous water heater on the market. Will sell all or half interest, or form company to build the same. Address Box 987, care Domestic Engineering, Chicago. 8-16-23-30

Miscellaneous.

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SEWAGE PURIFICATION AND DISposal. By J. J. Cosgrove. An exhaustive and reliable work on this vital subject. Fully illustrated. Bound in cloth; postpaid, $3.

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